The Journal of the American Osteopathic Association

AUGUST 1961 • VOLUME 60

Manipulative management of hypertension

Index to Volume 60

Table of contents on page A-2

ORAL IRON THERAPY with two-fold assurance

ferronord®

FERROGLYCINE SULFATE COMPLEX,® NORDSON

tablets/liquid

1. RAPID HEMATOLOGICAL RESPONSE

Serum Iron Elevation in 3 Hours

Peak Reticulocytosis in 5 to 9 days

2. HIGH INDEX OF TOLERANCE

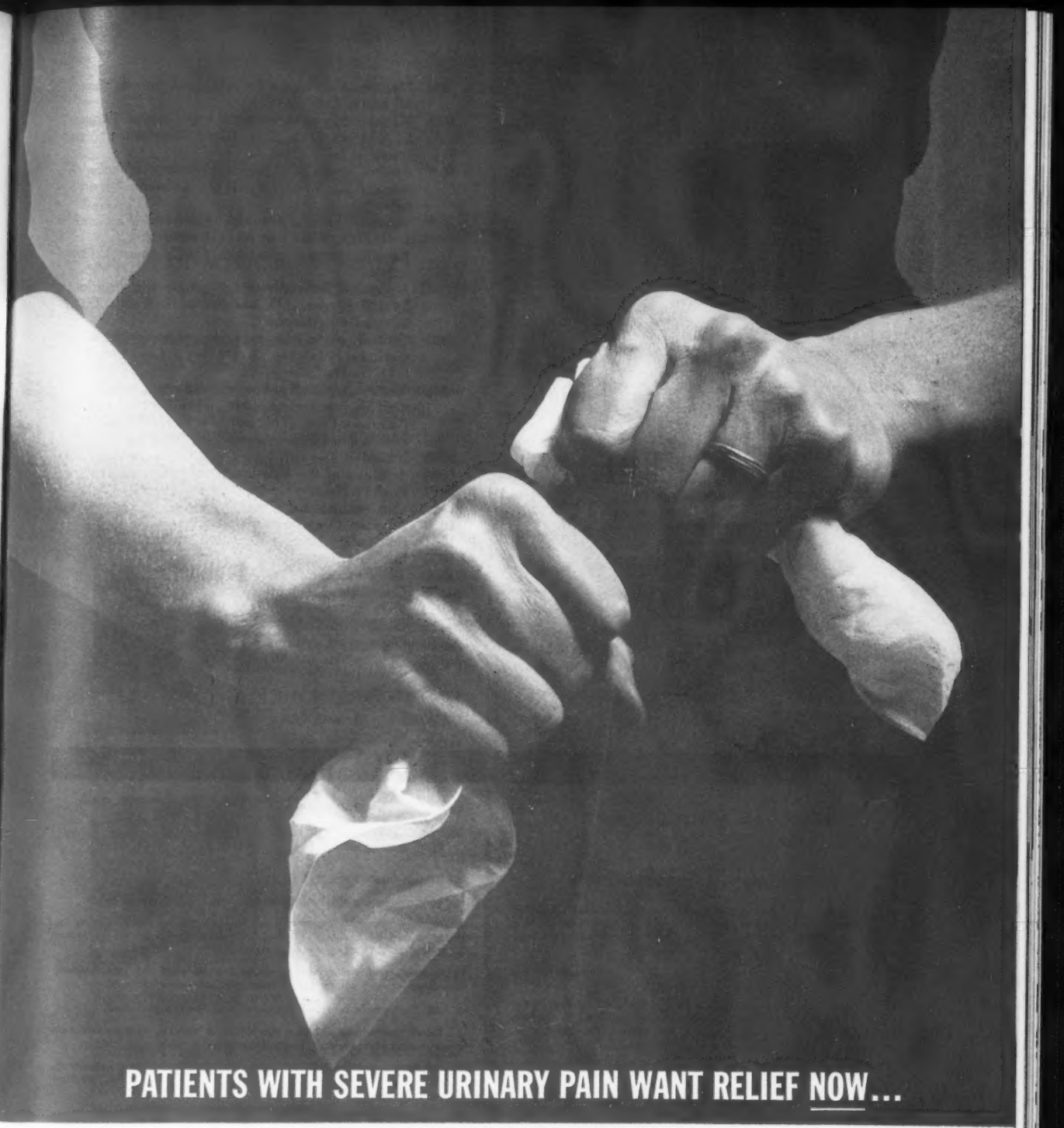
VIRTUALLY ELIMINATES gastric irritation, cramping, diarrhea, or constipation.

INDEED...best administered on an empty stomach.

NORDSON PHARMACEUTICAL LABORATORIES, INC.
New York 10, New York

©U. S. PAT. NOS. 2877253.2957806.

©COPYRIGHT 1961, NORDSON PHARMACEUTICAL LABORATORIES, INC.



PATIENTS WITH SEVERE URINARY PAIN WANT RELIEF NOW...

Rx PYRIDIUM®

brand of phenylazo-diamino-pyridine HCl

Two Pyridium tablets t.i.d. relieve the pain of urinary infection in only 30 minutes. During the first 3 to 4 days of therapy, Pyridium, prescribed along with any antibacterial of your choice, will make your patient comfortable until the antibacterial reduces inflammation and controls the infection.

AVERAGE DOSE: Adults—2 tablets t.i.d. Children 9 to 12 —1 tablet t.i.d. SUPPLIED: 0.1 Gm. tablets, bottles of 50. PRECAUTIONS: Pyridium is contraindicated in patients with renal insufficiency and/or severe hepatitis. *Full dosage information, available on request, should be consulted before initiating therapy.*

WARNER CHILCOTT

MORRIS PLAINS, N.J.

GP12

Makers of TEDRAL GELUSIL PHOLCODINE PERITRATE MANDELAMINE

The Journal of the American Osteopathic Association

August 1961, Volume 60, Number 12

969 The effect of staples on epiphysial growth. *James M. Eaton, D.O.*

973 Manipulative management of hypertension. *Thomas L. Northup, D.O., D.Sc. (Ost.), Morristown, New Jersey*

978 Applied anatomy of paranasal sinuses. *Blanche C. Allen, B.A., B.Sc. (Ed.), D.O., Ardmore, Pennsylvania*

984 Sudden "death": A mode of reversal. *F. Gerald Isett, D.O., West Van Nuys, California*

987 Juvenile rheumatoid arthritis (Still's disease). Correction.

988 A physical finding related to psychiatric disorders. *John M. Woods, D.O., and Rachel H. Woods, D.O., Kansas City, Missouri*

993 Control of weight gain in pregnancy utilizing methamphetamine. *J. Dudley Chapman, B.S., D.O., Rocky River, Ohio*

998 The diagnosis of pulmonary embolism and infarction: II. Roentgenographic and differential studies. *Alexander Price, D.O., and Murray H. Cohen, D.O., Philadelphia, Pennsylvania*

1005 Editorials

1009 Activities of the American Osteopathic Association

1017 Product News

1025 Current Literature

1030 Advance Convention Registration

1031 Convention Hotel Reservation Application

1032 Book Reviews

I-XXII Index to Volume 60

A- 81 Conventions and Meetings

A- 83 State and National Boards

A-112 Books Received

A-119 Changes of Address

A-153 Applications for Membership

INFORMATION FOR CONTRIBUTORS

THE JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION is the official scientific publication of the American Osteopathic Association. Articles are accepted with the understanding that they have not been published or accepted for publication elsewhere.

Manuscripts

1. Manuscripts should be typed in triplicate, the original and carbon sent to THE JOURNAL, and one carbon kept by the author. All copy including quotations, footnotes, tables, references, and legends for figures should be double-spaced, with ample margins.

2. References are required for all material derived from the work of others, whether or not author's names are mentioned. Reference numbers should be assigned in order of reference in the article. Each reference must include the name of the author and the full title of the article or book. For periodicals, the name, volume number, complete date, and inclusive paging of the article are required. For books, the edition, the name and location of the publisher, and the year of publication are required. Exact page numbers must be given for all direct quotations.

3. The author's degrees and teaching affiliations should be given.

4. The article should end with a comprehensive summary.

Illustrations

1. Photographs should be unmounted, untrimmed, glossy prints.

2. Figures, charts, tables which are to be engraved, and lettering on prints should be in black (India) ink on good quality white paper. Lettering should be large enough to be read when reduced.

3. Original roentgenograms or slides can be used for reproduction, but direct-contact glossy prints from originals are preferable.

4. All illustrations must be numbered and the top indicated.

5. Good illustrations enhance the value of articles, and contributors are encouraged to submit illustrative material with manuscripts.

6. When illustrations which have appeared elsewhere are submitted, full information should be given about previous publication, whether or not permission has been obtained, and credit to be given.

Copies of THE JOURNAL

1. Three copies of THE JOURNAL containing his article will be sent to the author on request.

Reprints

1. Information for ordering reprints is sent with galley proofs.

FOR ADDITIONAL INFORMATION, PLEASE WRITE THE EDITOR

Published monthly by the American Osteopathic Association. Printed by Neely Printing Company. Publication, Editorial, and Executive Offices, 212 E. Ohio St., Chicago 11, Ill. Subscription $10 a year; single copies $1.00. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 31, 1922. Second class postage paid at Chicago, Ill.

ALL CORRESPONDENCE SHOULD BE ADDRESSED TO 212 E. OHIO ST., CHICAGO 11, ILL. CHANGE OF ADDRESS: If possible, clip address from mailing envelope of your copy of this magazine and send along with new address (with zone number if any). Allow 5 weeks for change-over.

Copyright 1961, by American Osteopathic Association

without steroids this arthritic miner might still be spoon-fed

On METICORTEN, he has worked steadily for six years with no serious side effects

J. G.'s rheumatoid arthritis started in 1949 with severe and unremitting pain in his shoulders. Later, his wrists, elbows, feet and hands became involved with swelling and loss of function. By 1951, when he was 45, the patient was helpless and had to be fed and dressed by his wife. He was frequently hospitalized during the next three years. Hydrocortisone failed to make any change in his condition.

On April 2, 1955, the patient was placed on METICORTEN and improved promptly. Two weeks later he stated, "I feel very well now." He was able to go back to work as a mine electrician that year and had no difficulty driving a car.

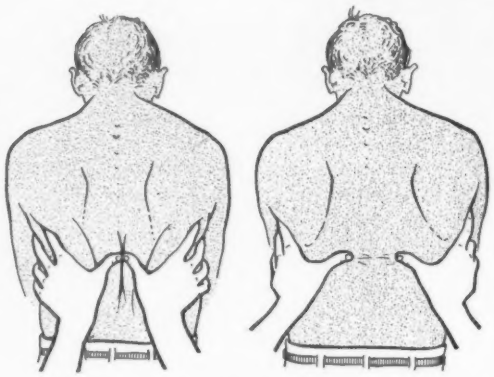
For the past six years, he has been maintained on METICORTEN 5 mg. two or three times a day. There have been no side effects. The patient has not lost any work time, nor has he had to limit his activities in any way.

Case history courtesy of Joel Goldman, M.D., Johnstown, Pa.
These photographs of Dr. Goldman's patient were taken on November 10, 1960.
METICORTEN,® brand of prednisone.

SCHERING CORPORATION • BLOOMFIELD, NEW JERSEY

5-713

Put these New Saunders Books to work in your practice!



Examination of the movement of the lower lobes.

By Reuben M. Cherniack, M.D., Assistant Professor of Medicine; and Louis Cherniack, M.D., Assistant Professor of Medicine. Both at the University of Manitoba School of Medicine, Canada. About 390 pages, 6" x 9¼", illustrated. About $11.50. *New—Just Ready.*

New! Cherniack and Cherniack's RESPIRATION IN HEALTH & DISEASE

Equips you with vital background information necessary for fuller understanding of respiratory disorders—the information you need for more effective diagnoses and treatment.

This valuable new book clarifies the mechanisms by which pathologic processes produce clinical findings. The authors first explain the normal functioning of the respiratory system, and then describe important types of respiratory disorder, the mechanism of development of each type of disorder, and the way in which such disorders produce symptoms and signs. You'll find coverage of scores of specific diseases, including: bronchial asthma—atelectasis—cysts of the lung—pulmonary hypertension—herniation of the mediastinum —manifestations of diaphragmatic disease—respiratory insufficiency.

New! Perez–Tamayo's MECHANISMS OF DISEASE

Here is a beautifully written, effectively illustrated survey of disease mechanisms at work in the human body. Coverage ranges from general aspects of cellular pathology to carefully chosen examples of disease-induced malregulation—giving a balanced view of disturbed homeostasis in disease.

The author de-emphasizes morbid anatomy in favor of showing the developing morphologic changes resulting from the progress of disease. He carefully supports his descriptions with pertinent cytologic, histologic, physiologic or biochemical evidence.

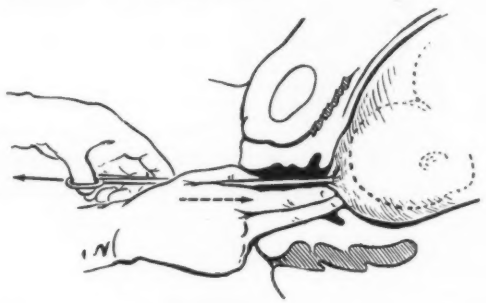
Material is completely up-to-date and contains latest concepts on such fascinating topics as *compatibility and rejection in tissue transplantation—the "virus" theory of cancer —general pathology of diffuse "collagen" diseases—inborn metabolic errors such as galactosemia—antibody formation.*

By Ruy Perez-Tamayo, M.D., Professor and Director of the Department of Pathology of the School of Medicine, National University of Mexico. About 494 pages, 7" x 10", with 232 illustrations. About $15.00. *New—Ready in September!*

New! Tenney and Little's CLINICAL OBSTETRICS

How would you manage a tubal pregnancy? . . . a cesarian section? . . . prolonged labor? . . . a pelvic tumor in pregnancy? . . . These are but a few of the many problems discussed in this new volume . . . problems which currently cause difficulty in the safe delivery of mother and child. Based on the present viewpoints and plans of management in effect at the Boston City Hospital and the Boston Lying-in Hospital, this text reflects the authors' own extensive experience in handling some of the most difficult and controversial situations in clinical obstetrics.

In each discussion the authors first present the features of the problem itself, with indications as to its frequency and importance. They then go on to describe the clinical aspects of the condition with rich detail on recognition, diagnosis, differential diagnosis, management and prognosis. You'll find full coverage of such problems as: heart disease in pregnancy—hypertension in pregnancy—blood incompatibilities—induction of labor—urinary tract infections—abortion—anesthesia—etc.



The Technique of Amniotomy. The fingers act as counterpressure as the forceps is gently pulled out to tear the amnionic membrane.

By Benjamin Tenney, M.D., Clinical Professor of Obstetrics and Gynecology, Harvard Medical School; and Brian Little, M.D., Boston Lying-in Hospital; About 500 pages, 6½" x 9¼", with 100 illustrations. About $9.00. *New—Ready September!*

ORDER TODAY!

Saunders books

W. B. **SAUNDERS** Company, West Washington Square, Philadelphia 5 JAOA 8-61

Please send me the following books and charge my account:

- ☐ Cherniack and Cherniack's Respiration in Health and Disease ..... *About $11.50*
- ☐ Perez-Tamayo's Mechanisms of Disease ..... *About $15.00*
- ☐ Tenney and Little's Clinical Obstetrics ..... *About $ 9.00*

Name.....

Address.....

A New Major Medical Resource

ALDACTONE®

(Brand of Spironolactone)

For Relief of Intractable Edema

ALDACTONE is a new classic step forward in the treatment of severe and resistant edema, achieving hitherto unmatched efficacy in relieving this condition.

A typical case history illustrates the extent to which Aldactone can supplement and advance established medical resources for treating edema and ascites.

Report of a Case*

Mrs. L. S., 44, was admitted to the hospital on April 17, 1959, with massive ascites, 3-plus edema of the legs and moderate pulmonary congestion. Three previous admissions had established that she had rheumatic heart disease with cardiac enlargement, atrial fibrillation and mixed valvular lesions.

She was placed on a regimen of bed rest, digitalis and 0.5 Gm. of sodium daily. On treatment which included mercurials parenterally, hydrochlorothiazide, KCl, NH_4Cl, aminophylline, prednisone, acetazoleamide and lysine monochloride the patient lost 15 pounds, but her ascites did not diminish noticeably and her weight remained within the range of 130 to 135 pounds from May 1 to May 30.

On May 30, 100 mg. of Aldactone q.i.d. was added to her regimen. Progressive and continuous diuresis followed. Weight dropped from 130 to 107 pounds, her normal weight. The patient was discharged on June 14 completely free from ascites and peripheral edema.

She was maintained on digitalis and hydrochlorothiazide and had no further weight gain until December 1959. She was then given 400 mg. of Aldactone daily for five days and again achieved dry weight, which was maintained as of February 1960.

SUPPLIED: Aldactone (brand of spironolactone) is supplied as compression-coated yellow tablets of 100 mg.

Klass, A.: Cur. Therap. Res. 2:322 (July) 1960.

G. D. SEARLE & CO., Chicago 80, Illinois
Research in the Service of Medicine

are opiates now outmoded in pediatric diarrhea?

Entoquel™ syrup
(Thihexinol methylbromide)

the first pharmacologically-specific, non-narcotic antiperistaltic agent ■ controls diarrhea as rapidly and effectively as opiates ■ without the undesirable properties of opiates ■ pleasant butterscotch flavor

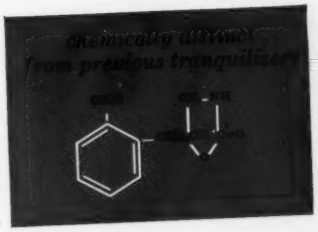
AND WHEN THE DIARRHEA IS BACTERIAL IN ORIGIN

Entoquel with Neomycin syrup

(Complete information regarding the use of Entoquel Syrup and Entoquel with Neomycin Syrup is available on request.)
Supplied: Entoquel Syrup – each 5 cc. contains 5 mg. thihexinol methylbromide, bottles of 6 oz. Entoquel with Neomycin Syrup – each 5 cc. contains 5 mg. thihexinol methylbromide and 50 mg. neomycin (from the sulfate), bottles of 6 oz. Available on Rx only.

WHITE LABORATORIES, INC., Kenilworth, New Jersey

LEDERLE INTRODUCES A NEW TRANQUILIZER



TREPIDONE®

Mephenoxalone Lederle

A NEW DEVELOPMENT
IN EMOTIONAL THERAPY
FROM LEDERLE

TRE

HELPS THE
PATIENT
"BE HIMSELF"
AGAIN...CALM,
YET FULLY
RESPONSIVE..
USUALLY
FREE OF
DROWSINESS
OR EUPHORIA

PIDONE®

Mephenoxalone Lederle

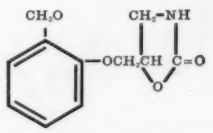
TO RESTORE THE NORMAL PATTERN OF EMOTIONAL RESPONSE

TREPIDONE Mephenoxalone is a new tranquilizer which has shown the capacity to relieve mild to moderate anxiety and tension without detracting significantly from mental alertness. Treated patients have shown little tendency to become sleepy or detached from reality, or to experience euphoria as a result of the drug. They generally respond normally to everyday situations . . . require fewer restrictions on activities, and tend to complain less frequently.

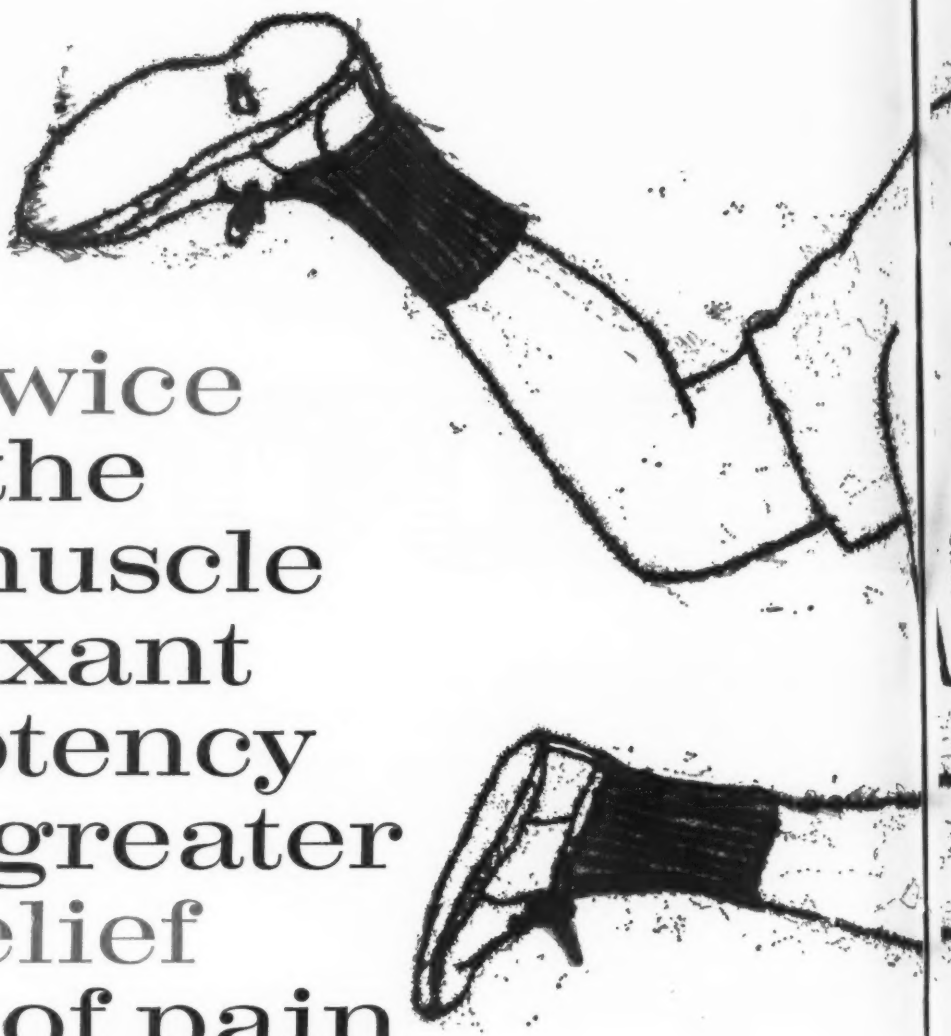
Extensive trials have shown no habit-forming properties or adverse effects on withdrawal, even after long-term administration. Complete information on indications, dosage, precautions and contraindications is available from your Lederle representative, or write to Medical Advisory Department.

Average adult dosage: One 400 mg. tablet, four times daily. Supplied: Half-scored tablets 400 mg. TREPIDONE Mephenoxalone, bottle of 50.

chemically distinct from previous tranquilizers



LEDERLE LABORATORIES
A Division of AMERICAN CYANAMID COMPANY
Pearl River, New York



twice
the
muscle
relaxant
potency
for greater
relief
of pain
and spasm

NEW PARAFON®

Combining a superior skeletal muscle relaxant[1-3] with a preferred musculoskeletal analgesic,[4,5] *new* PARAFON FORTE rapidly relieves *both* stiffness and associated pain of strains or sprains resulting from trauma or too vigorous, unaccustomed exertion. PARAFON FORTE facilitates recovery by improving function. PARAFON FORTE is equally effective in other musculoskeletal disorders, such as myositis, whiplash injuries, low back pain, and fibrositis. Side effects are rare, almost never require discontinuation of therapy.

FORTE

PARAFLEX® Chlorzoxazone† 250 mg.
TYLENOL® Acetaminophen 300 mg.

Dosage: Two tablets q.i.d. *Supplied:* Scored, light green tablets, imprinted "McNEIL," in bottles of 50.

References: (1) Settel, E.: Clin. Med. *6*:1373, 1959. (2) Peak, W. P., and Smith, P. T.: Penn. Med. J. *63*:833, 1960. (3) Mayle, F. C.; Sullivan, P. D., and Auth, T. L.: Med. Ann. D. C. *28*:499, 1959. (4) Roth, J. L. A.: Med. Clin. N. Amer. *41*:1517, 1957. (5) Batterman, R. C., and Grossman, A. J.: J. A. M. A. *159*:1619 (Dec. 24) 1955.

†U.S. Patent No. 2,895,877

374A61

McNEIL LABORATORIES, INC., Fort Washington, Pa.

McNEIL

...does she know that only **you** can help?

Many patients are unaware that their physician is the best source of contraceptive advice. Your prescription for Ortho-Gynol or Ortho-Creme with a diaphragm assures them the best available contraceptive protection. Accurate tests* for spermicidal potency, as well as years of clinical use, demonstrate that ORTHO contraceptive products are instantaneously spermicidal. The choice between Ortho-Gynol and Ortho-Creme is one of individual esthetic preference.

Ortho-Gynol® vaginal jelly

Ortho®-Creme vaginal cream

*The spermicidal potency of all ORTHO products is controlled by the **Titration Test** and the **Sander-Cramer Test**, which more closely duplicate vaginal conditions during coitus than other tests.

WHENEVER A DIAPHRAGM IS INDICATED

Ortho

WHY ACID MANTLE?

A DISTINCT THERAPEUTIC ENTITY*
Restores and maintains skin's normal protective acidity—
speeds natural healing and helps sensitive skin resist irritants and infection.

A NOTABLE VEHICLE
Special water-miscible, evaporable base assures better dispersion,
greater concentration of active ingredients in contact with skin—
increases response through its own therapeutic action.

*Supplied: in Creme and Lotion (pH 4.6).

now low-cost steroid topicals help insure sustained improvement without setbacks

new 1/8% Cort-Dome®

Creme · Lotion (pH 4.6)

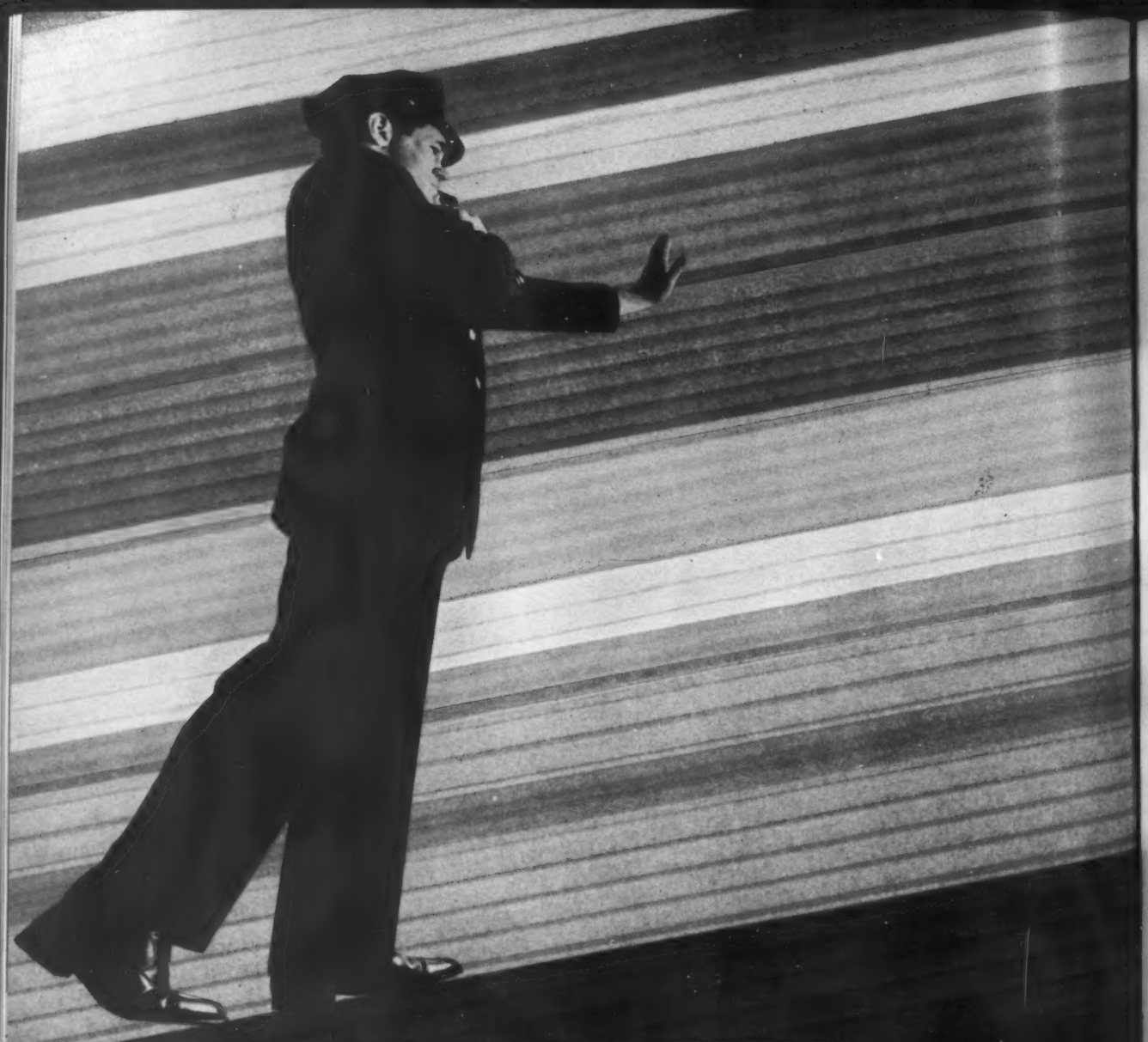
micro-dispersed hydrocortisone alcohol in Acid Mantle® for economical long-term therapy

IMPROVED PROCESS PERMITS EFFICIENT DOSAGE REDUCTION Once the dermatosis is brought under control with higher steroid concentrations, new ⅛% Cort-Dome, potentiated by the *micro-dispersion* of hydrocortisone in its Acid Mantle vehicle, can help insure therapeutic success—with less likelihood of flare-ups—until the skin's natural defenses are restored. The markedly lower cost of ⅛% Cort-Dome adds assurance that the patient will continue therapy as directed.

CORT-DOME—Tailored Steroid Topicals For individualized therapy and unique versatility in control of dermatologic problems at reasonable cost, Cort-Dome is supplied in a wide choice of concentrations: 2%, 1%, and ½% to initiate therapy; ¼% and new ⅛% for maintenance therapy. When infection is a consideration, Neo-Cort-Dome® provides neomycin sulfate 5 mg./Gm. in the same formulations at no extra cost.

WORLD LEADER IN DERMATOLOGICALS
DOME CHEMICALS INC.
New York 23, New York

01261



"POLICEMAN'S HEEL"

...and other painful or disabling musculoskeletal conditions often respond rapidly to the "antidoloritic"* effects of DECAGESIC. DECAGESIC helps restore normal function by relieving pain and discomfort, suppressing inflammation... and often adding a sense of well-being and renewed strength. DECAGESIC combines the benefits of DECADRON® and aspirin with aluminum hydroxide to provide increased efficacy with a lower incidence of side effects.

Decagesic®

dexamethasone with aspirin and aluminum hydroxide

FOR CONSERVATIVE MANAGEMENT OF MUSCULOSKELETAL SYNDROMES

Indications: Mild to moderate inflammatory, rheumatic, and musculoskeletal disorders, and conditions in which the conjunctive use of steroid and salicylate is indicated.

Dosage: 1 or 2 tablets 3 or 4 times daily. The usual precautions of corticosteroid therapy should be observed. Before prescribing or administering DECAGESIC, the physician should consult the detailed information on use accompanying the package or available on request.

Supplied: Bottles of 100. Each tablet contains 0.25 mg. of DECADRON dexamethasone, 500-mg. of aspirin (acetylsalicylic acid) and 75 mg. of aluminum hydroxide (present as the dried gel).

*The term "antidoloritic" has been coined by Merck Sharp & Dohme to describe an agent designed to allay pain associated with inflammation—dolor = pain, itic = associated with inflammation.

DECAGESIC and DECADRON are trademarks of Merck & Co., Inc.

MERCK SHARP & DOHME • Division of Merck & Co., Inc., West Point, Pa.

for a brighter pregnancy
DEXAMYL® SPANSULE®

brand of sustained release capsules

When pregnancy becomes burdensome, 'Dexamyl' Spansule capsules can help restore optimism and drive.

FORMULA: Each 'Dexamyl' *Spansule* capsule No. 1 contains Dexedrine® (brand of dextro amphetamine sulfate), 10 mg.; amobarbital (Warning, may be habit forming), 1 gr. Each 'Dexamyl' *Spansule* capsule No. 2 contains 'Dexedrine' (brand of dextro amphetamine sulfate), 15 mg.; amobarbital (Warning, may be habit forming), 1½ gr. The active ingredients of the 'Spansule' capsule are distributed among hundreds of minute pellets with varying disintegration times. A therapeutic dose is released immediately and the remaining medication, released slowly and without interruption, sustains the effect for 10 to 12 hours.

INDICATIONS: (1) Mental and emotional distress; (2) overweight.

RECOMMENDED DOSAGE: One 'Dexamyl' *Spansule* capsule taken in the morning.

SIDE EFFECTS: Insomnia, excitability and increased motor activity are infrequent and ordinarily mild.

CAUTIONS: Should be used with caution in patients hypersensitive to sympathomimetic compounds or barbiturates and in cases of coronary or cardiovascular disease or severe hypertension.

Prescribing information adopted January 1961.

Smith Kline & French Laboratories, Philadelphia SK&F

news from Syntex about topical steroid therapy...

New Synalar Cream speeds remission of many dermatoses when other topical—sometimes even systemic—steroids fail

Realizing the problem posed by intractable dermatoses in almost every practice, Syntex would like to invite your attention to new Synalar Cream. Clinical evidence points to its effectiveness in many refractory cases.

pitfalls avoided One of the most revealing studies on Synalar was designed by Dr. Jud R. Scholtz, who selected mostly patients with resistant dermatological lesions. For this study there were two basic criteria: 1) Only patients who had failed to respond to previous therapy were accepted for study. 2) Only complete clearing of lesions was judged "effective." Most patients suffered from lesions which had been present for months (or even years) and had proved resistant to topical steroid therapy. Some had failed to respond even to *systemic* steroid therapy.

These patients were divided into three groups: 1) Patients with multiple lesions had certain areas treated with Synalar, other lesions treated with older standard corticoids. 2) Patients with single chronic lesions (unresponsive to previous local and systemic therapy) were given Synalar alone. 3) Some patients with multiple lesions were given Synalar and treated concurrently with some other *non-corticoid* therapy in comparable lesions.

results Despite these rigorous criteria, results were impressive: effective in 80 per cent of eczematous dermatitis, superior to previously available agents in 32 out of 45. The author concluded: "This compound [Synalar] appears to produce results with topical application comparable to what can be produced with systemic corticoid therapy."[1] Nor are these isolated results. Analysis of 347 cases reported to the Syntex medical department gives convincing evidence that Synalar Cream is clinically superior.[2]

exclusive base Synalar, 40 times as potent topically as hydrocortisone, employs a specially formulated hydrophilic base. This water-washable cream is odorless, non-staining and cosmetically acceptable to the most particular patient. It has proved non-sensitizing in insult patch tests on 200 patients. Synalar Cream smooths on quickly and easily over inflamed lesions in sparing amounts.

References: 1. Scholtz, Jud R.: Paper presented at California Medical Association, April 30, 1961. 2. Product brochure available on request.

Indications: Synalar Cream is indicated in atopic dermatitis, neurodermatitis, contact dermatitis, seborrheic dermatitis, eczematous dermatitis, pruritus ani, lichen simplex, post-anal surgery, nummular eczema, stasis dermatitis, intertrigo, exfoliative dermatitis, and in certain superficial lesions of psoriasis.

Dosage and Administration: Synalar (0.025%) Cream is for topical use only. A small amount should be applied lightly to the affected skin area two or three times daily, as needed. The cream should be massaged gently and thoroughly until it disappears. Since Synalar is in a water-washable, vanishing cream base, it is easily applied and leaves no traces. Synalar may be used over long periods of time in specific conditions when deemed necessary.

Precautions: Synalar Cream is virtually non-sensitizing and non-irritating, but patients should be observed for development of idiosyncrasies or the spreading of infection.

In some instances of dermatoses, where an emollient effect is desired, such as in atopic dermatitis, dilution of the cream with equal parts of hydrogenated vegetable oil or petrolatum makes the cream more acceptable and effective.

Chemical Formula: 0.025% fluocinolone acetonide, Syntex (6α, 9α-difluoro-16α-hydroxyprednisolone-16,17-acetonide) in a water-washable, aqueous base.

How Supplied: Synalar (0.025%) Cream is supplied in 15 Gm. collapsible tubes. Available on prescription only.

your evaluation But even these very favorable reports cannot take the place of your own experience. To assist you in making your own evaluation of Synalar, here is a suggestion:

1. Select three of your most stubborn cases of dermatoses—cases refractory to previous topical steroid therapy or hitherto responsive only to more difficult-to-manage systemic steroid administration. (See indications.)
2. Treat them with new Synalar Cream for two weeks. (A complimentary starter dose for three patients is available on request.)
3. Judge the results.

objective proposal Here is how current clinical experience with Synalar is summarized: **New Synalar Cream speeds remission of dermatoses when other topical—sometimes even systemic—steroids have failed.** However, only your own experience will confirm this. That's why Syntex makes this proposal: use Synalar on your resistant cases... test your results against the reported evidence.

STILL AVAILABLE: Reprints of our concise review series.

Syntex Laboratories, Inc.
10 East 40th Street
New York 16, N. Y.

synalar® cream 15 Gm.
0.025% fluocinolone acetonide, Syntex

an original steroid from

SYNTEX STEROIDS IN MEDICINE

61 GP-2A

creators of anadrol™

refreshing . . .

delicious . . . stir into water and drink

FOR THE DIFFICULT OR OBSTINATELY CONSTIPATED

Effergel

(carboxymethylcellulose with a peristaltic stimulant)

7 Gm. white granular powder contains:
Sodium Carboxymethylcellulose ..... 2 Gm.
Di(acetylhydroxyphenyl)isatin ..... 5 mg.
(chemically similar to the active principle of prunes)

FOR THE CHRONICALLY OR ROUTINELY CONSTIPATED

Effersyl

(psyllium with a mild peristaltic stimulant)

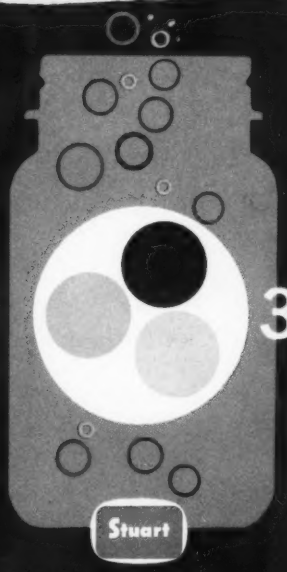
7 Gm. pink granular powder contains:
Psyllium hydrocolloid ..... 3 Gm.
the highly purified hemicellulose of the husk of the psyllium seed (Plantago ovata, Forsk).
Di(acetylhydroxyphenyl)isatin ..... 3 mg.
(chemically similar to the active principle of prunes)

FOR PATIENTS WHO NEED BULK ONLY

Effersyllium

(psyllium with no peristaltic stimulant added)

7 Gm. tan granular powder contains:
Psyllium hydrocolloid ..... 3 Gm.
the highly purified hemicellulose of the husk of the psyllium seed (Plantago ovata, Forsk).



for the full range of constipation

3 EFFERVESCENT BULK LAXATIVES

All three lubricating . . . non-irritating.
All three produce soft, well-formed stools.

DOSAGE

Adults: 1 rounded teaspoonful (7 Gm.) in a glass of water daily. Subsequent dosage to be adjusted according to results.

Children, 6 years and over: 1 level teaspoonful in one-half glass of water at bedtime.

Children under 6 years: According to age.

Available at all pharmacies. Professional samples on request.

THE STUART COMPANY
PASADENA, CALIFORNIA

an entirely different way to take vitamins

new **Stuart** *instant*

Vita-drink

multivitamin drink

The whole family will enjoy the three delicious flavors:

ORANGE
CHERRY
GRAPE

LOW-IN-CALORIES, 10 PER DOSE.

LOW-IN-COST.

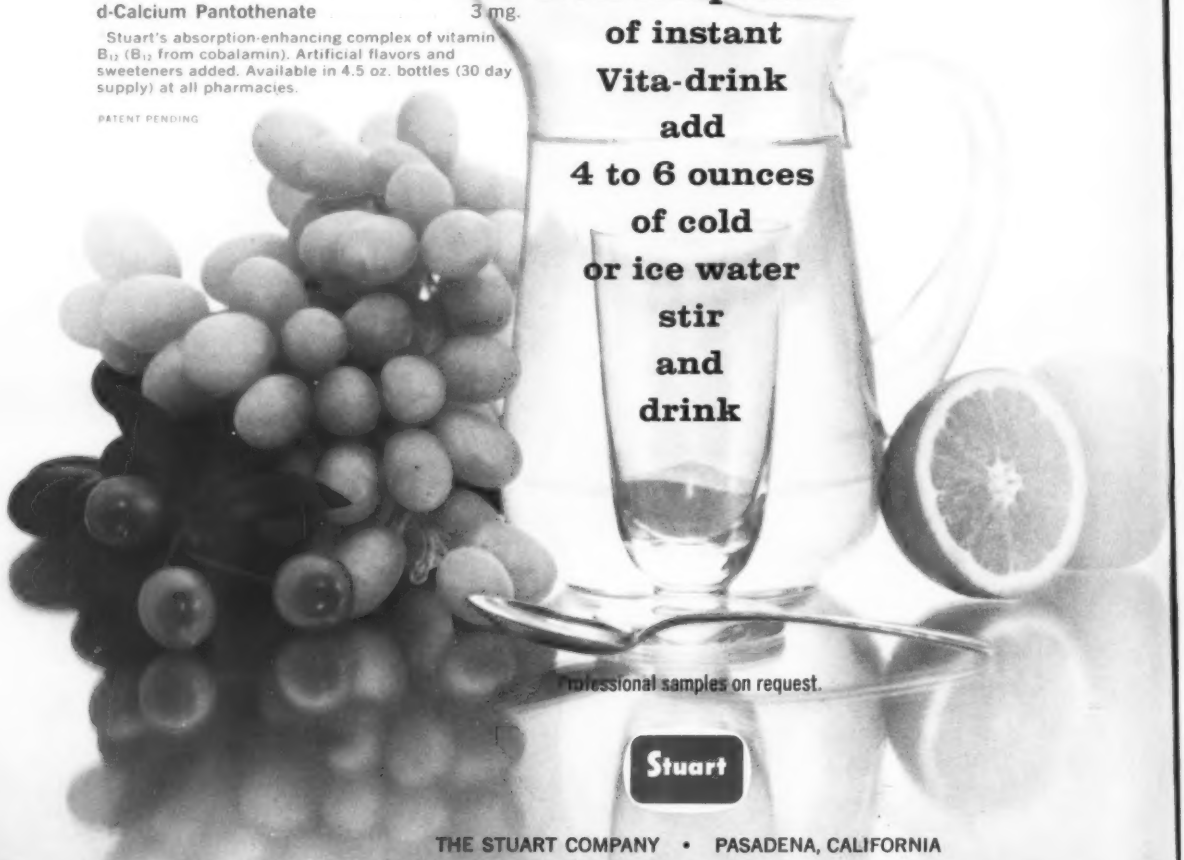
1 level teaspoonful (approx. 4.3 Gm.) contains:

VITAMINS	
A	5,000 USP units
D	1,000 USP units
C	75 mg.
B_1	2 mg.
B_2	2 mg.
B_6	1.2 mg.
B_{12} as Ionex-12*	3 mcg.
Niacinamide	10 mg.
d-Calcium Pantothenate	3 mg.

*Stuart's absorption-enhancing complex of vitamin B_{12} (B_{12} from cobalamin). Artificial flavors and sweeteners added. Available in 4.5 oz. bottles (30 day supply) at all pharmacies.

PATENT PENDING

to one level teaspoonful of instant Vita-drink add 4 to 6 ounces of cold or ice water stir and drink



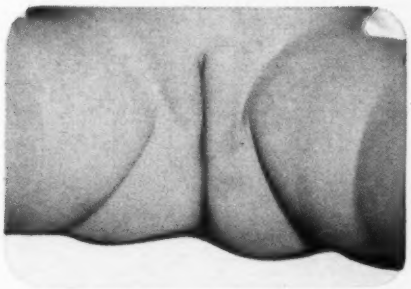
Professional samples on request.

Stuart

THE STUART COMPANY • PASADENA, CALIFORNIA

SHORTENS THE HEALING TIME... DIAPER RASH

Before application of A and D Ointment—Typical diaper rash with excoriation of skin.



After application of A and D Ointment—Diaper rash has completely disappeared within one week.

A and D OINTMENT
REG. T.M.

completely safe, highly effective—heals, soothes and protects / A and D Ointment both treats and prevents diaper rash. In seconds, it soothes painful irritated skin—starts to heal excoriation. It may be applied liberally at every diaper change, is eminently safe for even the most delicate tissues. Will not stain the skin or wash away in body secretions. Easily laundered from diapers or clothing. / A and D Ointment is also useful for pressure sores, varicose and chronic ulcers, nipple care (fissured nipples), episiotomy and circumcision wounds, eczema, detergent dermatitis, burns, wounds and skin abrasions.

Available: 1½ and 4 oz. tubes; 1 and 5 lb. jars. Also, A and D Ointment with Prednisolone, 10 and 25 gm. tubes.

WHITE LABORATORIES, INC. / KENILWORTH, NEW JERSEY

White

PHENAPHEN®

- More satisfactory than "the usual analgesic compounds" for relieving pain and anxiety.[1]
- More effective than a standard A.P.C. preparation for relief of moderate to severe pain.[2]

Each PHENAPHEN *capsule contains:*

Acetylsalicylic acid (2½ gr.)	162 mg.
Phenacetin (3 gr.)	194 mg.
Phenobarbital (¼ gr.)	16.2 mg.
Hyoscyamine sulfate	0.031 mg.

Also available:

PHENAPHEN with CODEINE PHOSPHATE ¼ GR. (16.2 mg.) Phenaphen No. 2

PHENAPHEN with CODEINE PHOSPHATE ½ GR. (32.4 mg.) Phenaphen No. 3

PHENAPHEN with CODEINE PHOSPHATE 1 GR. (64.8 mg.) Phenaphen No. 4

Bottles of 100 and 500 capsules.

1. Meyers, G. B.: Ind. Med. & Surg. 26:3, 1957. 2. Murray, R. J.: N. Y. St. J. Med. 53:1867, 1953.

A. H. ROBINS CO., INC., RICHMOND 20, VIRGINIA

Making today's medicines with integrity... seeking tomorrow's with persistence.

Robins

A SAVINGS ACCOUNT HELPS PROVIDE A SECURE FUTURE

ELDEC®

mineral-vitamin-hormone formula

KAPSEALS®

HELP PROVIDE A HEALTHY ONE

by supplying a dependable source of vitamins, minerals, hormones, and digestive enzymes.

- vitamins to help maintain cellular function and to prevent and correct vitamin deficiencies
- digestive enzymes to aid in offsetting decreased natural production
- gonadal hormones to stimulate metabolism and help prevent or correct protein depletion states

Each ELDEC Kapseal contains vitamins—1,667 units A, 0.67 mg. B_1 mononitrate, 0.67 mg. B_2, 0.5 mg. pyridoxine hydrochloride, 0.033 N. F. Unit (Oral) B_{12} with intrinsic factor concentrate, 0.1 mg. folic acid, 33.3 mg. C, 16.7 mg. nicotinamide, 10 mg. *dl*-panthenol, 6.67 mg. choline bitartrate; minerals—16.7 mg. ferrous sulfate (exsiccated), 0.05 mg. iodine (as potassium iodide), 66.7 mg. calcium carbonate; digestive enzymes—20 mg. Taka-Diastase® (Aspergillus oryzae enzymes), 133.3 mg. pancreatin; amino acids—66.7 mg. *l*-lysine monohydrochloride, 16.7 mg. *dl*-methionine; gonadal hormones—1.67 mg. methyltestosterone, 0.167 mg. Theelin.

Indications: To supplement other sources of vitamins, minerals, hormones, digestive enzymes, and amino acids.

Dosage: One Kapseal three times daily before meals. Female patients should follow each 21-day course with a 7-day rest interval.

Precaution: Contraindicated in patients wherein estrogen or androgen therapy should not be used, as in carcinoma of the breast, genital tract, or prostate, and in patients with a familial tendency to these types of malignancy; give cautiously to females who tend to develop excessive hair growth or other signs of masculinization.

Packaging: ELDEC Kapseals are available in bottles of 100.

68741

PARKE-DAVIS

PARKE, DAVIS & COMPANY, Detroit 32, Michigan

iron utilization improves the picture

In the "secondary" anemias due to chronic disease or infection, iron alone is often ineffective since its utilization is impeded by depressed bone marrow activity. However, RONCOVITE®-MF (cobalt-iron) has proved notably effective in these iron-refractory anemias[1,2] because of the unique marrow-activating effect of cobalt-created erythropoietin, the hormone which controls the rate of erythropoiesis. Thus, RONCOVITE-MF improves iron utilization and produces rapid increases in hemoglobin and red blood cell formation.[3,4]

Each tablet contains: Cobalt chloride, 15 mg. (cobalt as Co, 3.7 mg.) and ferrous sulfate exsiccated, 100 mg.

RONCOVITE®-mf

(1) Weinsaft, P. P., and Bernstein, L. H. T.: Am. J. M. Sc. 230:264, 1955. (2) Gosselin, G., and Long, L. A.: Appl. Therap. 2:453, 1960. (3) Rohn, R. J.; Bond, W. H., and Klotz, L. J.: Journal-Lancet 73:317, 1953. (4) Center, W. M.: Clin. Med. 7:713, 1960. V-014-61 119-8

LLOYD BROTHERS, INC.
Cincinnati 29, Ohio

Sturdy, well satisfied babies

BAKER'S MODIFIED MILK PROVIDES OPTIMUM PROTEIN NUTRITION

"There is abundant clinical evidence . . . that formula-fed infants receiving high protein allowances compare favorably to thriving breast-fed infants."[1] Authorities,[2] whose experience with the hunger of infants fed even 3.5 grams of protein per kilogram, have opposed intakes of cows' milk which would give less protein.

Baker's Modified Milk supplies a protein level of 3.7 grams per kilogram of body weight per day to meet normal needs and to provide a dietary reserve for increased protein demands caused by fever, diarrhea and infections. An adequate water reserve is also provided for renal function and proper water balance by the 20 Cal/oz. dilution.[3]

Because an infant's health depends upon total adequacy of his diet,[4] Baker's Modified Milk supplies an optimum protein level, 6% of the calories as essential linoleic acid, and contains 7% carbohydrate composed of multiple sugars, the R.D.A.[5] of vitamins, and 7.5 mg. of iron per quart of formula.

OPTIMUM NUTRITION
Providing all the normal dietary requirements plus a reserve for stress situations while avoiding the hazards of excessive amounts of individual nutrients.

1. Hill, L. F.: J. Pediatrics 54: 545 (1959) 2. Gordon, H. H., and Ganson, A. F.: J. Pediatrics 54: 503 (1959) 3. A.A.P. Committee on Nutrition, Pediatrics 19: 339 (1957) 4. Woodruff, Calvin W.: J. A. M. A. 175: 114 (1961) 5. Recommended Dietary Allowances, NAS-NRC Publication 589 (1958) 6. U.S.P.H.S. Milk Code, Federal Security Agency Publ. 220 (1953)

Baker's MODIFIED MILK

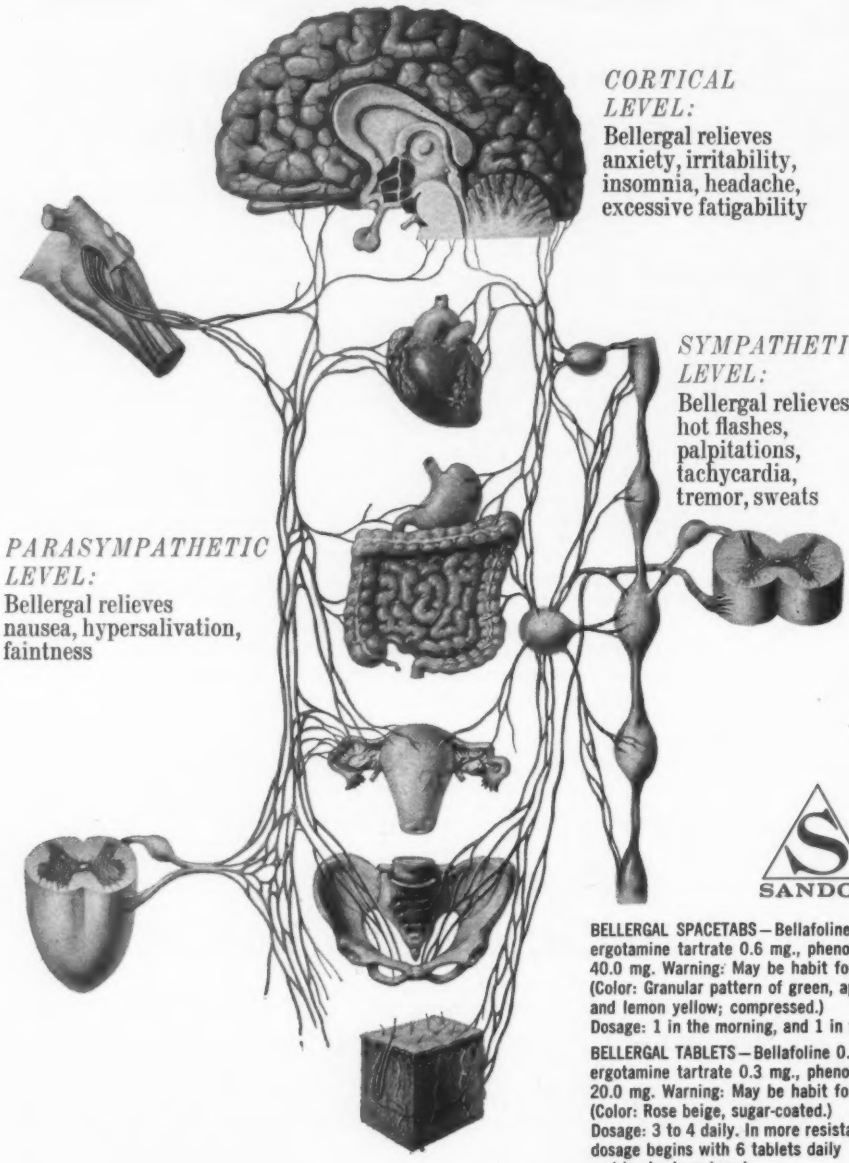
Made only from Grade A milk[6]—scientifically formulated to duplicate the nutritional results of human milk. *Powder/Liquid*

THE BAKER LABORATORIES, INC., Cleveland 15, Ohio

Menopausal distress: a syndrome involving all three levels of the autonomic nervous system

for functional disorders of the menopause **Bellergal®**
SPACETABS®

stabilizes the entire autonomic nervous system
(*without disturbing endocrine balance*)



CORTICAL LEVEL:
Bellergal relieves anxiety, irritability, insomnia, headache, excessive fatigability

SYMPATHETIC LEVEL:
Bellergal relieves hot flashes, palpitations, tachycardia, tremor, sweats

PARASYMPATHETIC LEVEL:
Bellergal relieves nausea, hypersalivation, faintness

SANDOZ

BELLERGAL SPACETABS—Bellafoline 0.2 mg., ergotamine tartrate 0.6 mg., phenobarbital 40.0 mg. Warning: May be habit forming. (Color: Granular pattern of green, apricot and lemon yellow; compressed.)
Dosage: 1 in the morning, and 1 in the evening.

BELLERGAL TABLETS—Bellafoline 0.1 mg., ergotamine tartrate 0.3 mg., phenobarbital 20.0 mg. Warning: May be habit forming. (Color: Rose beige, sugar-coated.)
Dosage: 3 to 4 daily. In more resistant cases, dosage begins with 6 tablets daily and is slowly reduced.

from mental confusion to the right frame of mind

continuous, 24-hour cerebral oxygenation for the aging patient. By stimulating respiratory and circulatory function, GERONIAZOL TT* relieves mental confusion, depression, anxiety, and emotional instability—frequent problems in patients after forty—due to presenile changes in the vasculature of the brain. Notable benefit usually is seen within one to three weeks of therapy. It improves appetite, sleep pattern, and outlook—and GERONIAZOL TT* is non-hypertensive, non-excitatory.

Neither a tranquilizer nor a psychic energizer, GERONIAZOL TT* provides a physiologic stimulation of the cerebrum to permit the patient to adjust to his surroundings, become part of life itself again—and *attain the right frame of mind.*

References: 1. Curran, T. R., and Phelps, D. K.: Am. Pract. & Dig. Treat. *11:* 617, 1960. 2. Levy, S.: J.A.M.A. *153:* 1260, 1953. 3. Connolly, R.: W. Va. Med. J. *56:* 263, 1960.

Each TEMPOTROL contains: Pentylenetetrazol, 300 mg.; and Nicotinic Acid, 150 mg.

Indications: Respiratory and circulatory stimulant for the aged and debilitated with symptoms of mental confusion, depression, anxiety or arteriosclerotic psychosis.

Contraindications: None known in recommended dosage.

Dosage: One GERONIAZOL TT* tablet, b. i. d.

Supplied: Bottles of 42 tablets (3 weeks' treatment).

GERONIAZOL® TT*

*TEMPOTROL® (Time Controlled Therapy)

PHILIPS ROXANE, INC. Columbus 16, Ohio

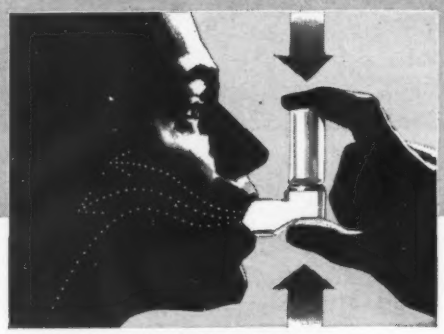
ASTHMA RELIEF
in seconds

MEDIHALER®

the most effective anti-asthmatics...

administered in the most effective manner...

simplest and most convenient for the patient...



Available with either of the two outstanding bronchodilators

MEDIHALER-ISO®

Isoproterenol sulfate, 2.0 mg. per cc., suspended in inert, nontoxic aerosol vehicle. Contains no alcohol. Each automatically measured dose contains 0.075 mg. isoproterenol.

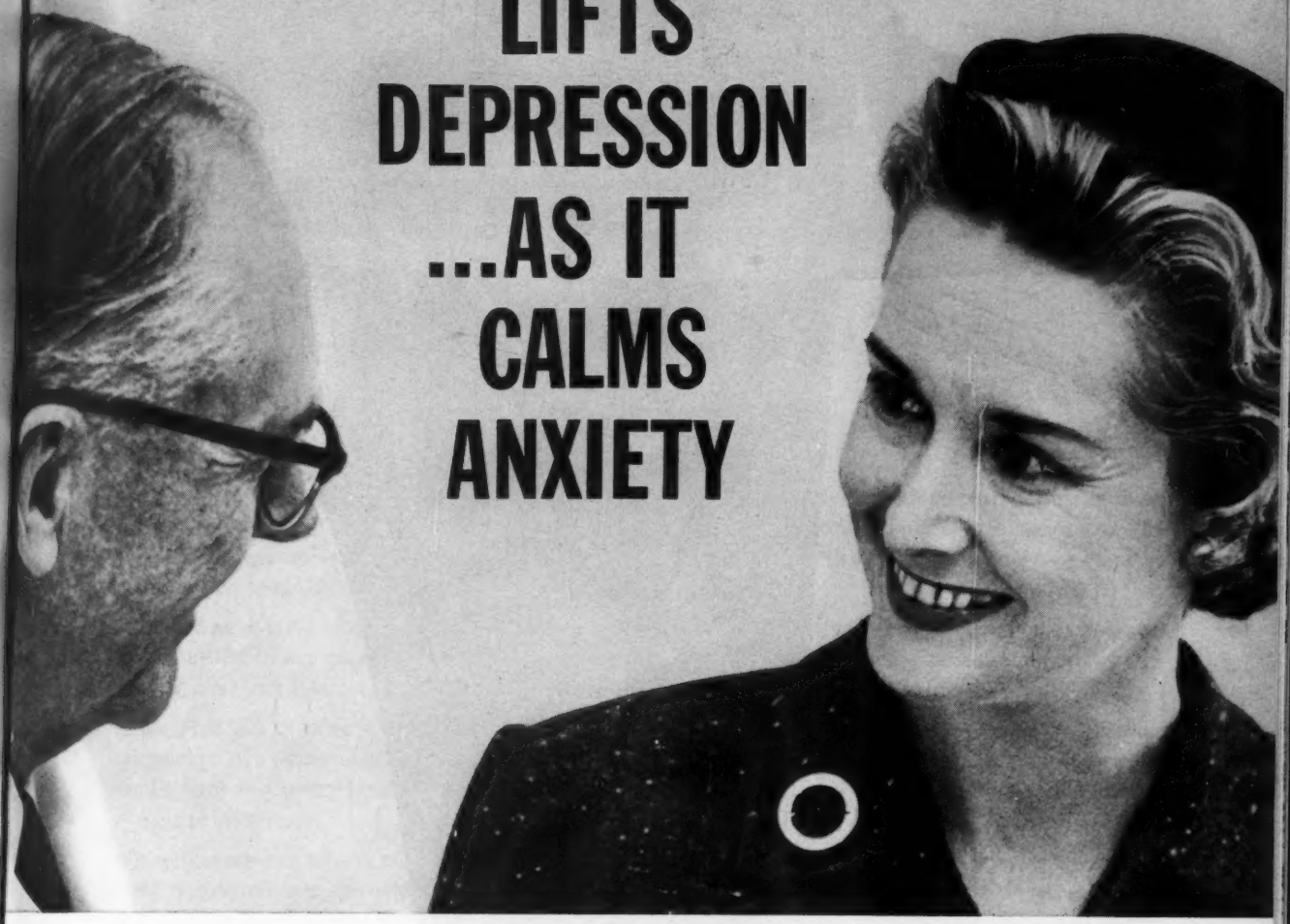
MEDIHALER-EPI®

Epinephrine bitartrate, 7.0 mg. per cc., suspended in inert, nontoxic aerosol vehicle. Contains no alcohol. Each automatically measured dose contains 0.15 mg. epinephrine.

Usual precautions for administration of isoproterenol and epinephrine should be observed.

Riker Northridge, California

LIFTS DEPRESSION ...AS IT CALMS ANXIETY



"I feel like my old self again!" Thanks to your balanced Deprol therapy, normal drive and interest have replaced her emotional fatigue.

Brightens up the mood, brings down tension

Balanced action – avoids "seesaw" effects of energizers and amphetamines.

Acts rapidly – you see improvement in a few days.

Acts safely – no danger of liver or blood damage.

Dosage: Usual starting dose is 1 tablet q.i.d. When necessary, this dose may be gradually increased up to 3 tablets q.i.d.

Composition: 1 mg. 2-diethylaminoethyl benzilate hydrochloride (benactyzine HCl) and 400 mg. meprobamate.

Supplied: Bottles of 50 light-pink, scored tablets.

WALLACE LABORATORIES / *Cranbury, N. J.*

CD-4688

▲Deprol▲®

Mail this coupon for clinical supply of Deprol

Dept. D-15
Professional Services Dept.
Wallace Laboratories
Cranbury, N. J.

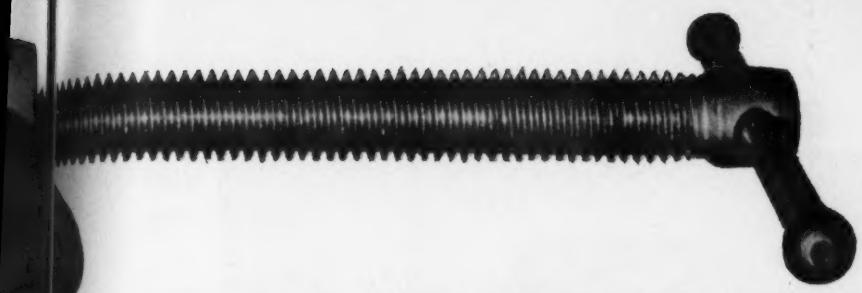
Gentlemen: *Please send me a clinical supply of Deprol for the treatment of depression.*

Dr. .....

Street .....

City ..... Zone ..... State .....

Type of practice .....



WHAT'S NEW AND SPECIFIC FOR INTERMITTENT CLAUDICATION

INCREASES AND MAINTAINS BLOOD FLOW FOR 10-12 HOURS

STRIKING RELIEF OF PAIN Roniacol Timespan eases the pain and markedly increases activity range in intermittent claudication.[1] Action: specific dilation of peripheral vessels.[1] Result: Roniacol increases blood flow to ischemic extremities.[2-4] Improved circulation also helps reduce the danger of gangrene[5-7]—a common complication of obliterative vascular disease.

MORNING DOSE EFFECTIVE ALL DAY New, sustained-release Roniacol Timespan brings convenience and continuity in the treatment of intermittent claudication—precludes forgotten midday doses, and permits daylong or nightlong symptomatic relief with one dose in the morning, another at night.

NEGLIGIBLE SIDE EFFECTS Unlike sympathetic blocking agents, Roniacol is selective—produces no cardiac stimulation, no hypotension, no gastrointestinal stimulation[8,9]—may be used safely in the presence of gastritis, peptic ulcer or coronary disease. Of 264 patients on Roniacol Timespan, only thirteen experienced side effects—none of them major.[1]

RONIACOL TIMESPAN tablets are recommended for convenience of therapy in conditions associated with deficient circulation; e.g., peripheral vascular disease, including generalized arteriosclerosis, cerebral arteriosclerosis, varicose ulcers, decubital ulcers, chilblains, diabetic endarteritis, Meniere's syndrome and vertigo due to impaired cerebral circulation.

DOSAGE: One or two Roniacol Timespan tablets in the morning and at night.

SUPPLY: Tablets of 150 mg, in bottles of 50. When prolonged effects are not desired, prescribe Roniacol Tartrate tablets, 50 mg, or Roniacol Elixir, 50 mg per teaspoonful (5 cc).

REFERENCES: 1. Reports on File, Roche Laboratories. 2. E. C. Texter, et al., Am. J. M. Sc., 224:408, 1952. 3. M. M. Fisher and H. E. Tebrock, New York J. Med., 53:65, 1953. 4. I. H. Richter, et al., New York J. Med., 51:1303, 1951. 5. S. S. Samuels and E. D. Padernacht, Angiology, 1:236, 1950. 6. G. Kagan, Lancet, 2:53, 1959. 7. S. S. Samuels, Angiology, 1:46, 1950. 8. C. M. Castro and L. De Soldati, Angiology, 4:165, 1953. 9. R. M. N. Crosby, Am. J. M. Sc., 225:61, 1953. 10. J. Dosdos and G. E. Arnold, Eye Ear Nose & Throat Month., 38:1035, 1959.

Roniacol®—brand of nicotinyl alcohol. Timespan®

ROCHE LABORATORIES • Division of Hoffmann-La Roche Inc • Nutley 10, N. J.

RONIACOL Tartrate TIMESPAN

SAFE, SPECIFIC PERIPHERAL VASODILATOR IN THE NEW SUSTAINED-RELEASE FORM

Athlete's foot is caused by fungi invading the horny, keratinized layers of the skin not reached by the normal blood supply. Topical application of DESENEX, a combination of zinc undecylenate and undecylenic acid, brings these powerful antifungal agents into direct contact with troublesome fungi and quickly relieves—**and arrests**—the annoying condition.

Hundreds of thousands of athlete's foot infections have been arrested by topical treatment with DESENEX, among the best tolerated of all potent fungicidal agents.

And DESENEX is inexpensive—only pennies per treatment: DESENEX Ointment can be applied liberally to both feet every night for a week and a half from only a single tube. Itching and discomfort are stopped almost immediately. DESENEX is also recommended for treatment of other susceptible fungus infections of the skin and nails.

Dosage: At night, supply Ointment liberally to infected and surrounding areas. In the morning, rub or shake powder into the shoes and feet.

Supplied: Ointment—1 oz. tubes and 1 lb. jars. Powder—1½ oz. and 1 lb. containers. Solution (Undecylenic acid)—2 fl. oz. and 1 qt. bottles. Aerosol Spray—6 oz. cans.

Maltbie Laboratories Division,
Wallace & Tiernan Inc., Belleville 9, N. J.

Available in Canada through Elliott-Marion Company, Ltd., Montreal. PD-11

Where's the arthritic this morning?

Thanks to Medrol Medules, he woke up comfortable and he's already on the go.

The first long-acting oral steroid, Medrol Medules gives the arthritic patient therapeutic action that continues through the night. In many cases, morning stiffness can become a thing of the past.

The slow, steady release of methylprednisolone often provides greater effectiveness, with less frequent administration and sometimes a reduced total daily dosage.

Many of your arthritic patients, too, can wake up comfortable on Medrol Medules.

Dosage: The following dosages are recommended in rheumatoid arthritis:

	Initial	*Maintenance*
Severe	12 to 16 mg.	6 to 12 mg.
Moderately severe	8 to 10 mg.	4 to 8 mg.
Moderate	6 to 8 mg.	2 to 6 mg.
Children	6 to 10 mg.	2 to 8 mg.

With Medrol Medules, it may be possible to reduce the total daily dose by ⅓.

Indications and effects: Medrol benefits (anti-inflammatory, antiallergic, antirheumatic, antileukemic, antihemolytic) have been demonstrated in acute rheumatic carditis, rheumatoid arthritis, asthma, hay fever and allergic disorders, dermatoses, blood dyscrasias, and ocular inflammatory disease involving the posterior segment.

Precautions and contraindications: Because of Medrol's high therapeutic ratio, patients usually experience dramatic relief without developing such possible steroid side effects as gastrointestinal intolerance, weight gain or weight loss, edema, hypertension, acne, or emotional imbalance.

As in all corticotherapy, however, there are certain cautions to be observed. The presence of diabetes, osteoporosis, chronic psychotic reactions, predisposition to thrombophlebitis, hypertension, congestive heart failure, renal insufficiency, or active tuberculosis necessitates careful control in the use of steroids. Like all corticosteroids, Medrol is contraindicated in patients with arrested tuberculosis, peptic ulcer, acute psychoses, Cushing's syndrome, herpes simplex keratitis, vaccinia, or varicella.

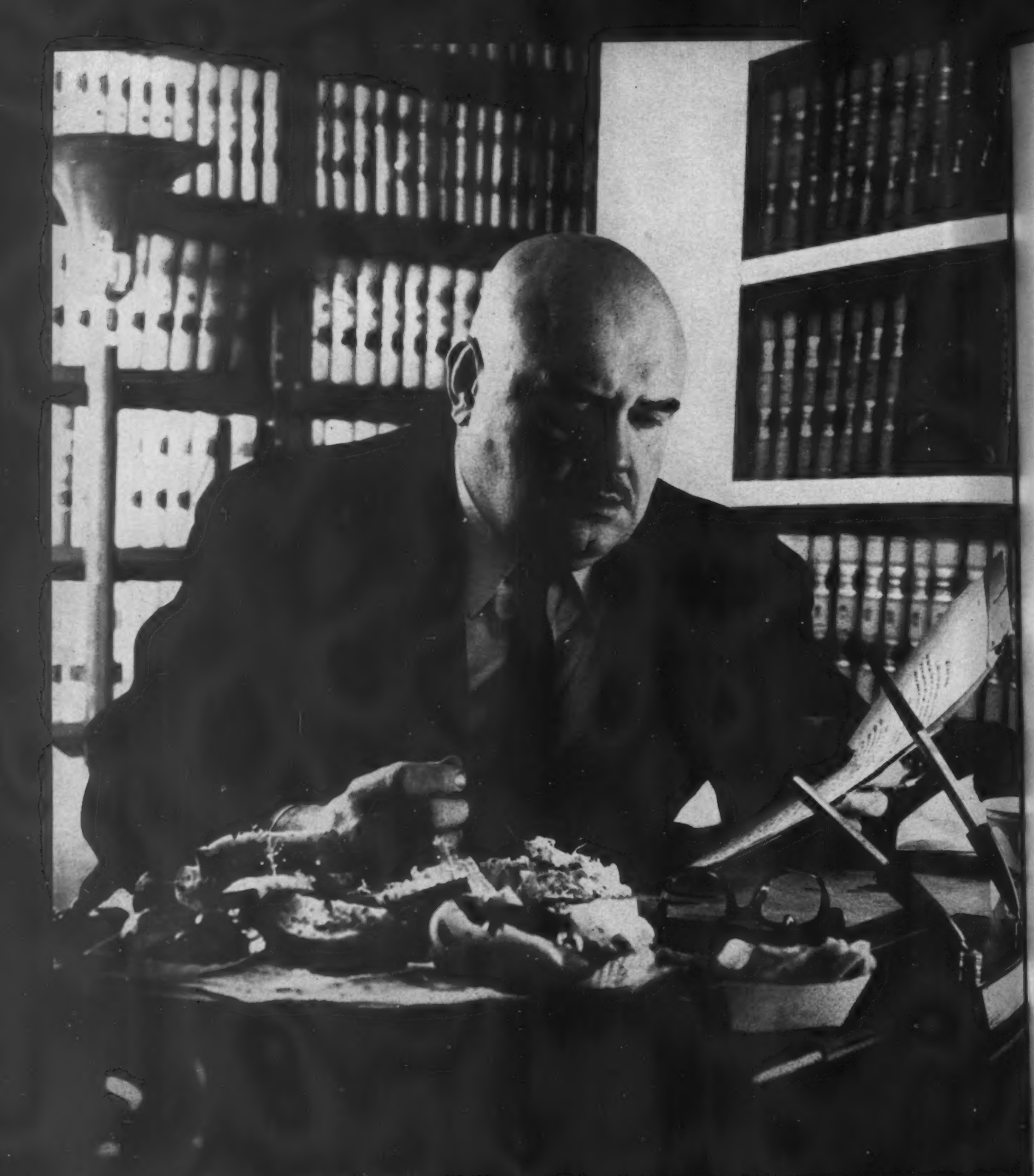
Approximately 135 tiny "doses" mean smoother steroid therapy

Each capsule contains:
Medrol (methylprednisolone) 4 mg.
Supplied in bottles of 30 and 100.

Medrol* Medules*

Upjohn

*TRADEMARK, REG. U.S. PAT. OFF. COPYRIGHT 1961, THE UPJOHN COMPANY JUNE, 1961 THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN



for "special-problem" patients... when corticosteroid therapy is indicated

Aristocort®

in rheumatoid arthritis

Aristocort®

Triamcinolone LEDERLE

UNSURPASSED "GENERAL-PURPOSE" STEROID
OUTSTANDING FOR "SPECIAL-PURPOSE" THERAPY

ARISTOCORT Triamcinolone has long since proved its *unsurpassed efficacy and relative safety* in treating rheumatoid arthritis. Mounting clinical evidence has shown that ARISTOCORT is also highly valuable for the "special-problem" arthritic – the patient who, because of certain complications, was hitherto considered a poor candidate for corticosteroids.

for example:

SPECIAL PROBLEM: ANXIETY-TENSION

When triamcinolone was used, euphoria and psychic unrest rarely occurred. (McGavack, T. H.: *Clin. Med.* 6:997 [June] 1959.)

SPECIAL PROBLEM: OVERWEIGHT

No patient developed voracious appetite on triamcinolone. Preferable for the overweight person whose appetite is undesirably stimulated by other steroids. (Freyberg, R. H.; Berntsen, C. A., Jr., and Hellman, L.: *Arthritis & Rheumatism* 1:215 [June] 1958.)

SPECIAL PROBLEM: EDEMA

Since it does not produce edema, triamcinolone is useful in rheumatoid arthritis patients with cardiac decompensation who need steroid therapy. (Hollander, J. L.: *J.A.M.A.* 172:306 [Jan. 23] 1960.)

SPECIAL PROBLEM: HYPERTENSION

Triamcinolone may be included among the currently available antirheumatic steroids having the least tendency to cause sodium retention. (Ward, L. E.: *J.A.M.A.* 170:1318 [July 11] 1959.)

Hypertension did not result from triamcinolone therapy. Existing hypertension was reduced sometimes. This may have been due to lack of sodium retention. (Freyberg, R. H.; Berntsen, C. A., Jr., and Hellman, L.: *Arthritis & Rheumatism* 1:215 [June] 1958.)

Precautions: Collateral hormonal effects generally associated with corticosteroids may be induced. These include Cushingoid manifestations and muscle weakness. However, sodium and potassium retention, edema, weight gain, psychic aberration and hypertension are exceedingly rare. In the treatment of rheumatoid arthritis, dosage should be individualized and kept at the lowest level needed to control symptoms. Dosage should not exceed 36 mg. daily without potassium supplementation. Drug should not be withdrawn abruptly. Contraindicated in herpes simplex and chicken pox.

Supplied: Scored tablets—1 mg. (yellow); 2 mg. (pink); 4 mg. (white); 16 mg. (white). Also available—syrup, parenteral and various topical forms.

Lederle

Request complete information on indications, dosage, precautions and contraindications from your Lederle representative or write to Medical Advisory Department.

LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

a **New**

unique product for

Nausea and Vomiting of Pregnancy

motion sickness

inner ear disturbance

Bucladin

pleasant-tasting Softab* form
melts quickly in the mouth
no water needed.

attacks basic causes centrally
and peripherally.

contains both antiemetic
and antispasmodic.

well tolerated · long acting.

lower in cost.

Each Softab Contains:

Buclizine Dihydrochloride	50 mg.
Vitamin B_{12}	10 mg.
Scopolomine (Hyoscine)	0.2 mg.
Atropine	0.05 mg.
Hyoscyamine	0.05 mg.

Write for samples and literature

Stuart

THE STUART COMPANY, PASADENA, CALIFORNIA

*TRADEMARK
PATENT PENDING

Geriactive with Filmtab® Gerilets®

Geriatric Supportive Formula, Abbott

He's crossed a somewhat arbitrary point in life over into what's been dubbed "the geriatric years." In many ways, though, you'd never really know it. (Not to suggest that he'd *seriously* consider following the elusive current leading to Easter Island.)

But, he is nonetheless busy. He works . . . has hobbies . . . keeps up with the world around him.

And one way for you to help keep your geriatric's attitude optimistic, rather than diffident, is through Filmtab Gerilets. For, with Gerilets, you're prescribing dietary and therapeutic support which can contribute towards: improving functions illness or age have impaired—toning up the patient's appetite—brightening his overall outlook.

Dosage? Easy. Just a single, tiny pleasant-to-take Gerilets Filmtab a day.

ONE GERILETS FILMTAB PROVIDES:

B-Complex Vitamins
Thiamine Mononitrate (B_1) 5 mg.
Riboflavin (B_2) ..... 5 mg.
Pyridoxine Hydrochloride (B_6) ..... 1 mg.
Nicotinamide..... 20 mg.
Calcium Pantothenate..... 5 mg.

Oil Soluble Vitamins
Vitamin A.... 1.5 mg. (5000 units)
Vitamin D... 12.5 mcg. (500 units)
Vitamin E..... 10 Int. units

Hematopoietic Factors
Cobalamin (Vitamin B_{12})... 5 mcg.
Ferrous Sulfate, USP..... 75 mg.
(representing 15 mg. elemental iron)
*Folic Acid..... 0.25 mg.

Capillary Stability
Ascorbic Acid (C)..... 50 mg.
Quertine®..... 12.5 mg.
(Quercetin, Abbott)

Lipotropic Factors
Betaine Hydrochloride..... 50 mg.
Inositol..... 50 mg.

Anti-Depressant
Desoxyn®..... 1 mg.
(Methamphetamine Hydrochloride, Abbott)

Hormones
Sulestrex®..... 0.3 mg.
(Piperazine Estrone Sulfate, Abbott)
Methyltestosterone..... 2.5 mg.

*FOLIC ACID DOES NOT CONTROL THE NEUROLOGICAL SYMPTOMS OF PERNICIOUS ANEMIA.

10/7019 FILMTAB—FILM-SEALED TABLETS, ABBOTT. U.S. PAT. NO. 2,801,960.

2 Iberol Filmtabs a day supply:

The Right Amount of Iron

Ferrous Sulfate, U.S.P..... 1.05 Gm.
(Elemental Iron—210 mg.)

Plus Therapeutic B-Complex

Cobalamin (Vitamin B_{12})..... 25 mcg.
Liver Fraction 2, N. F..... 200 mg.
Thiamine Mononitrate..... 6 mg.
Riboflavin..... 6 mg.
Nicotinamide..... 30 mg.
Pyridoxine Hydrochloride..... 3 mg.
Calcium Pantothenate..... 6 mg.

Plus Vitamin C

Ascorbic Acid..... 150 mg.

Filmtab—Film-sealed tablets, Abbott

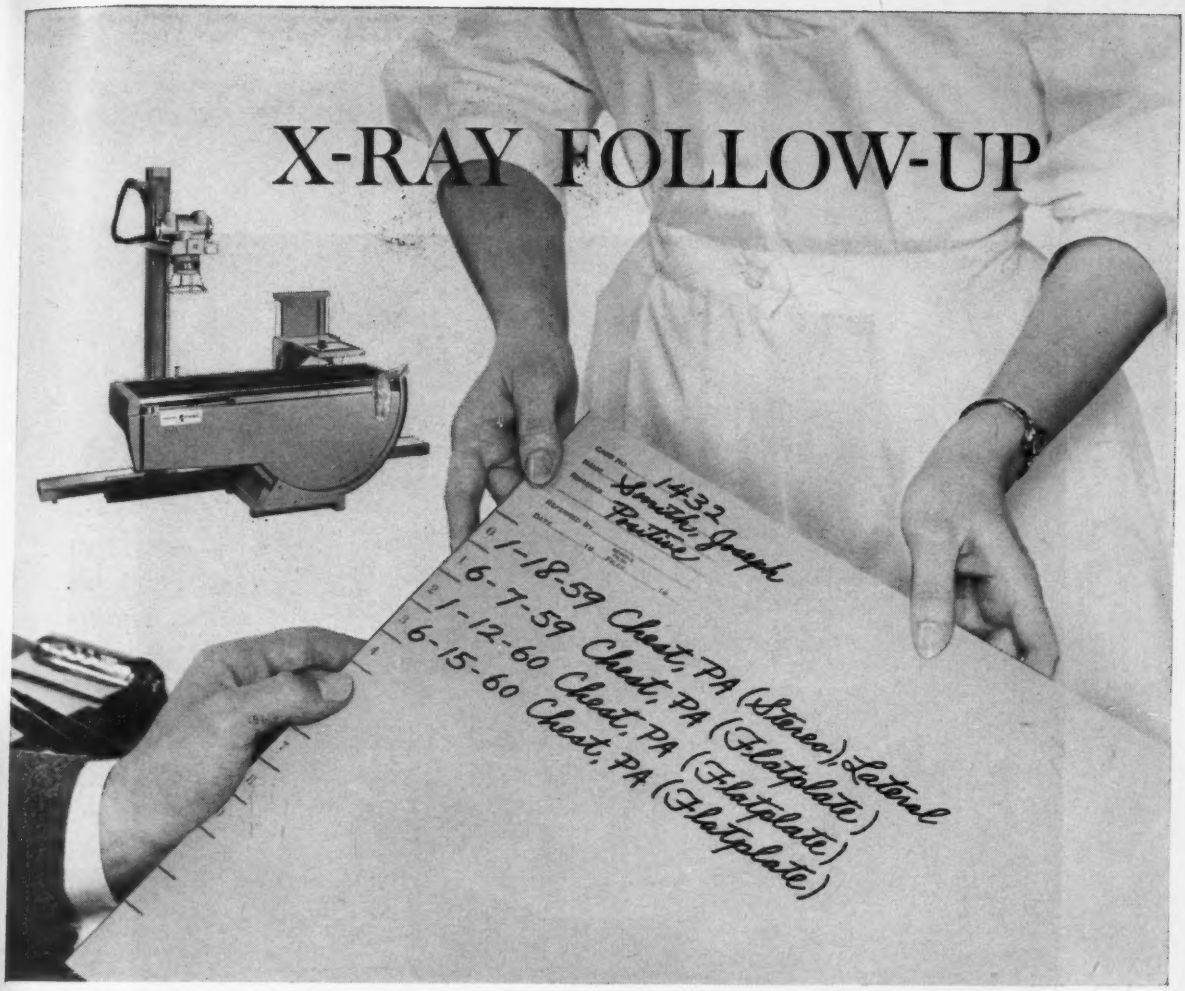
Note: Iberol®-F with 1 mg. of Folic Acid in each Filmtab is available on your prescription. (Folic Acid does not control neurological symptoms of pernicious anemia.) 107020

ABBOTT

Anemia in the menopause

Another indication for Filmtab® **IBEROL®**
(Iron, Vitamin B_{12}, and Other Vitamins, Abbott)

Potent antianemia therapy plus therapeutic B-complex, with the exclusive Filmtab coating which protects stability—locks in vitamin taste and odor.



. . . time after time, Patrician "200" guarantees x-ray exposures exactly as you dial them

In periodic patient follow-up, you really come to appreciate the meaning of "True-to-Dial" accuracy with the G-E Patrician "200" combination. Film comparison is easier because of guaranteed consistent x-ray output. Performance holds predictably from range to range . . . even from one G-E unit to another! And with it you get so many more Patrician features: full-size 81" tilting table . . . independent tube-stand . . . counterbalanced, not counterpoised, fluoroscopic screen or spot film device . . . radiation confined to screen area by automatic shutter limiting device . . . economy of purchase and operation.

You can rent the Patrician. G-E Maxiservice® plan provides an attractive alternative to outright purchase. Included, for a convenient monthly fee, are installation, maintenance, parts, tubes, insurance, local taxes. Contact your G-E x-ray representative for details. Or just clip coupon.

Progress Is Our Most Important Product

GENERAL ELECTRIC

General Electric X-Ray Department
Milwaukee 1, Wisconsin, Room R-81

Send me: ☐ Patrician bulletin
☐ Maxiservice bulletin

NAME_____

ADDRESS_____

_____

Rautrax-N lowers high blood pressure gently, gradually . . . protects against sharp fluctuations in the normal pressure swing.

Rautrax-N offers all the advantages of Raudixin, Naturetin and potassium chloride in a single dosage form *plus: increased efficacy* – Combined action of Raudixin and Naturetin results in a potentiated antihypertensive effect greater than that produced by either drug alone. *increased safety* – Potentiated action permits lower dose of other antihypertensive agents, thus reducing severity of side effects. Protection against possible potassium depletion. *flexibility* – Interchangeable with either Raudixin or Naturetin ĉ K. *economy* – Maintenance dosage of only 1 or 2 tablets daily for most patients. *convenience* – Once-a-day maintenance dosage. Two potencies available.

Supply: Rautrax-N – capsule-shaped tablets providing 50 mg. Raudixin, 4 mg. Naturetin and 400 mg. potassium chloride. *Rautrax-N Modified* – capsule-shaped tablets providing 50 mg. Raudixin, 2 mg. Naturetin and 400 mg. potassium chloride.

Rautrax-N*

Squibb Standardized Whole Root Rauwolfia Serpentina (Raudixin) and Bendroflumethiazide (*Naturetin) with Potassium Chloride

For full information, see your Squibb Product Reference or Product Brief.

SQUIBB

Squibb Quality – the Priceless Ingredient

*RAUDIXIN®, *RAUTRAX® AND *NATURETIN® ARE SQUIBB TRADEMARKS.

Keep the arthritic man in motion

DELENAR loosens the rheumatic grip on muscles and joints by relaxing motion-stopping muscle spasm with a proved muscle relaxant. Then the specific analgesia of better-tolerated aluminum aspirin eases motion-stopping pain and helps put muscles back in action.

While immediate symptomatic relief restores motion, the underlying inflammation is reduced with a low-dosage corticosteroid.

Now you can restore comfortable motion safely, surely with DELENAR in rheumatoid arthritis/traumatic arthritis/early osteoarthritis/rheumatoid spondylitis/fibrositis/myositis/bursitis/tenosynovitis.

Formula:

Orphenadrine HCl 15 mg.....Proved muscle relaxant to relax spasm
Aluminum Aspirin 375 mg.....Fast analgesic relief of motion-stopping pain
Dexamethasone* 0.15 mg.....Low-dosage anti-inflammatory steroid

For complete details, consult latest Schering literature available from your Schering Representative or Medical Services Department, Schering Corporation, Bloomfield, New Jersey. *DERONIL®

Bibliography:

1. Ernst, E. M.: *Pennsylvania M.J. 63*:708 (May) 1960. 2. Settel, E.: *Clin. Med. 7*:1835 (Sept.) 1960.

loosen stiff muscles and joints

Delenar®

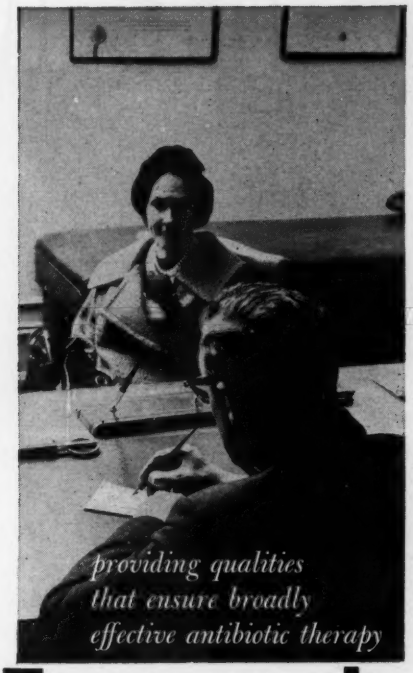
the only corticosteroid-analgesic with specific muscle relaxant benefits

Schering

H-384

I know
it is
effective

The continuing clinical effectiveness of Terramycin therapy derives as always from its proven antibiotic characteristics - rapid absorption; notably wide distribution in body tissues and fluids; high, active urinary concentrations; and a broad anti-infective spectrum embracing even such a troublesome organism as Pseudomonas. Additionally, Terramycin therapy provides the assurance of a 10-year record of exceptional toleration.



Cosa-Terramycin®

OXYTETRACYCLINE WITH GLUCOSAMINE

today's oral *form of Terramycin*

IN BRIEF

Cosa-Terramycin provides oxytetracycline (Terramycin®) with glucosamine for maximum absorption.

INDICATIONS: Because oxytetracycline is effective against both gram-positive and gram-negative bacteria, rickettsiae, spirochetes, large viruses, and certain parasites (amebae, pinworms), Cosa-Terramycin is indicated in a great variety of infections due to susceptible organisms, e.g., infections of the respiratory, gastrointestinal, and genitourinary tracts, surgical and soft-tissue infections, ophthalmic and otic infections, and many others.

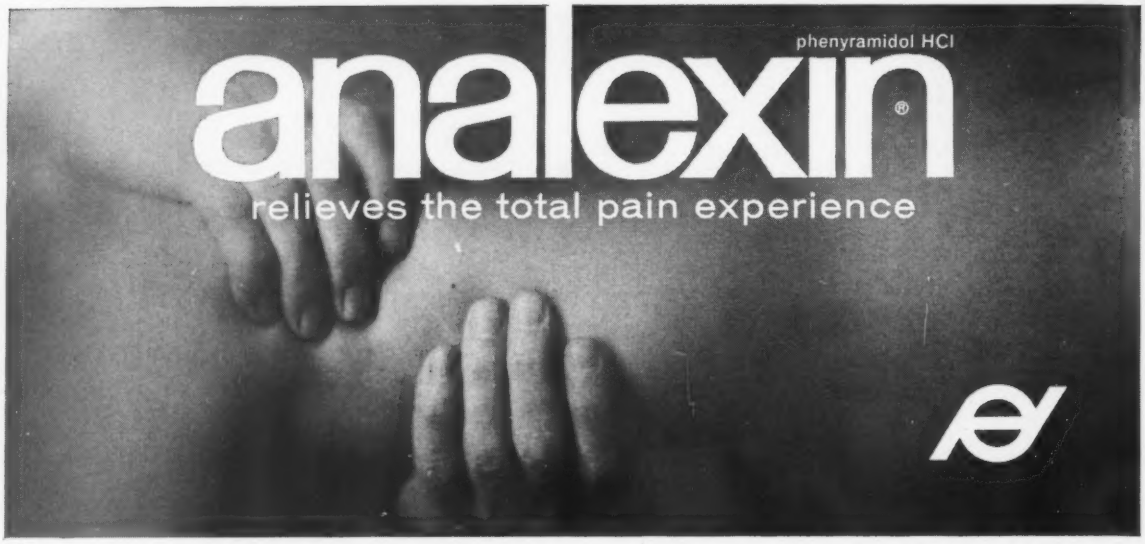
ADMINISTRATION AND DOSAGE: Adults: 1 Gm. of oxytetracycline daily in four divided doses is usually effective. In *severe* infections, a larger dosage (2-4 Gm. daily) may be indicated. Infants and children: 10-20 mg. of oxytetracycline per lb. of body weight daily. Certain diseases are treated in courses.

SIDE EFFECTS AND PRECAUTIONS: Antibiotics may allow overgrowth of nonsusceptible organisms—particularly monilia and resistant staphylococci. If this occurs, discontinue medication and institute indicated supportive therapy and treatment with other appropriate antibiotics. Aluminum hydroxide gel has been shown to decrease antibiotic absorption and is therefore contraindicated. Glossitis and allergic reactions are rare. There are no known contraindications to glucosamine.

SUPPLIED: *Cosa-Terramycin Capsules,* 250 mg. and 125 mg. Terramycin is also available in: *Cosa-Terrabon® Oral Suspension,* a palatable preconstituted aqueous suspension containing 125 mg. per 5 cc. teaspoonful, bottles of 2 oz. and 1 pint; *Cosa-Terrabon® Pediatric Drops,* a palatable preconstituted aqueous suspension containing 5 mg. per drop (100 mg. per cc.), bottle of 10 cc. with calibrated plastic dropper; and *Terramycin Intramuscular Solution, conveniently preconstituted,* in the new 10 cc. multi-dose vial, 50 mg. per cc., and in 2 cc. prescored glass ampules, containing 100 mg. or 250 mg., packages of 5 and 100. In addition, a variety of other systemic and local dosage forms are available to meet specific therapeutic requirements.

More detailed professional information available on request.

Science for the world's well-being® Pfizer PFIZER LABORATORIES *Division, Chas. Pfizer & Co., Inc. Brooklyn 6, New York*



"... *Satisfies the majority of the criteria demanded of a moderately potent non-specific analgesic agent .... safe ...for acute and chronic pain....*"[1]

In the relatively short period since its introduction, Analexin has compiled an impressive record of success and safety in relieving a wide variety of painful states seen by the osteopathic physician. In analgesic effectiveness, Analexin is within the range of codeine, yet Analexin is non-narcotic and not narcotic related, and there is no evidence suggestive of tolerance or cumulative toxicity.[1-8] In fact, Analexin is so safe, it may be administered hourly if necessary, depending on the degree of relief required.

If you have been waiting for a safer, more effective analgesic, with a broad range of applications, why not consider Analexin? Proof of its performance is shown below . . . and you may find it invaluable in relieving pain that results from numerous other disorders you encounter in your practice.

Analexin®—*for relief of pain.* Each tablet contains 200 mg. phenyramidol HCl. DOSAGE: Generally, 2 tablets at onset of pain, followed by 1 or 2 tablets at intervals of one to 4 hours as needed.

Analexin-AF®—*for relief of pain complicated by inflammatory processes.* Each tablet contains 100 mg. phenyramidol HCl and 300 mg. aluminum aspirin. DOSAGE: Generally, 2 tablets at onset of pain, followed by 1 or 2 tablets at intervals of one to 4 hours as needed.

Analexin® Syrup—*convenient dosage form for children and adults.* Each 5 cc. contains phenyramidol salicylate 100 mg. DOSAGE: Children—under 3 yrs., 1 tsp. 3 or 4 times daily; 3-12 yrs., 2 tsp. 3 or 4 times daily. Adults—2 to 4 tsp. every one to 4 hrs.

TYPICAL RESULTS WITH ANALEXIN* AND ANALEXIN-AF

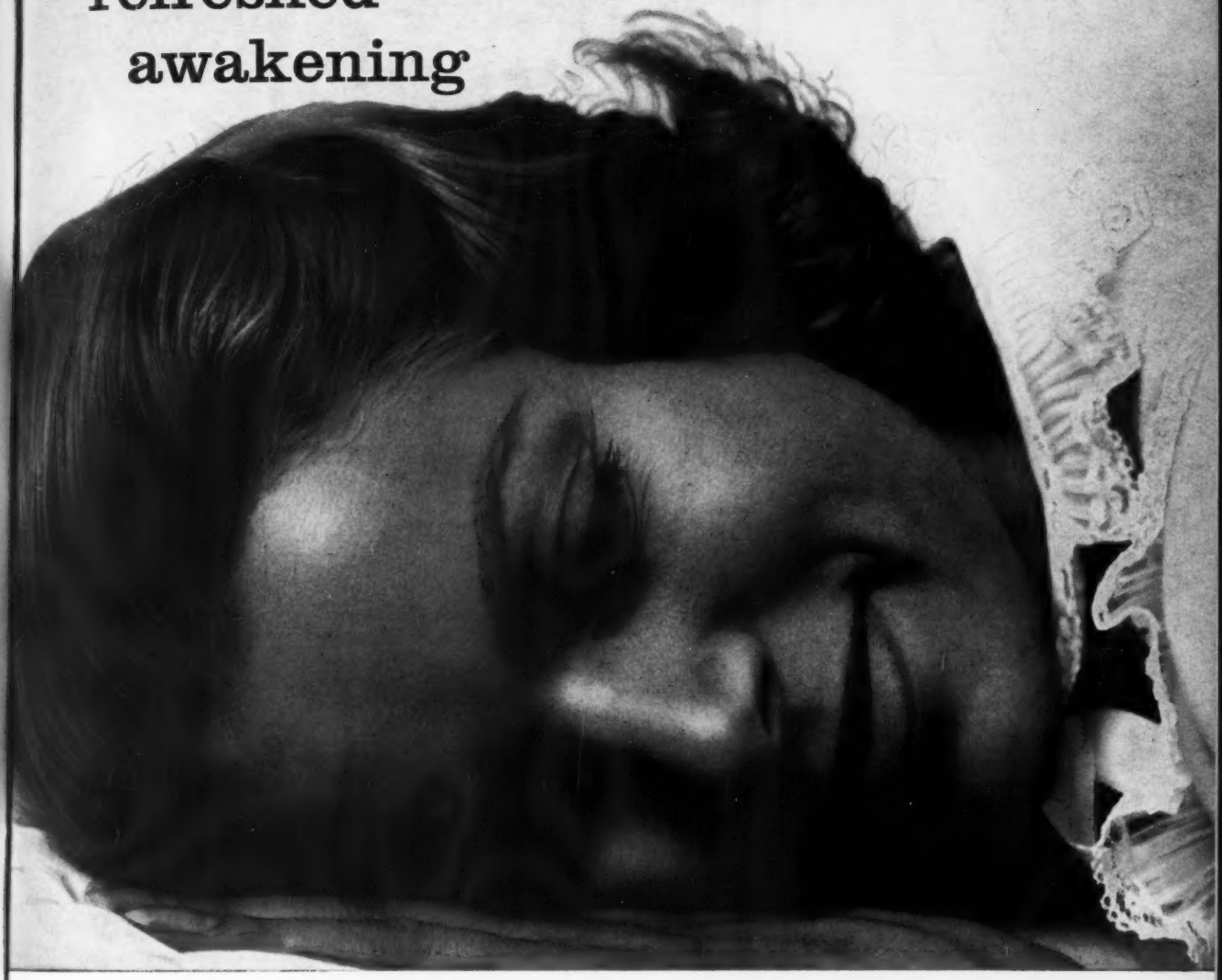
CONDITION pain associated with:	No. of patients	Relief	Slight or no relief
genitourinary conditions[1]	3	3	
gall bladder colic[1]	5	2	3
abdominal pain[1]	10	6	4
epigastric pain[1]	10	7	3
premenstrual tension headache[6]	50	40	10
postpartum pain[6]	100	100	
dysmenorrhea[6,7]	106	96	10
myositis, myalgia and tendinitis[7]	27	23	4
osteoarthritis[7]	82	62	20
rheumatoid arthritis[7]	38	23	15
arthralgia[7]	15	9	6
pelvic pain (chronic P.I.D., endometriosis, etc.)[7]	12	8	4
acute, chronic and traumatic musculoskeletal disorders[7]	33	28	5
Totals	491	407	84

*Generically designated as phenyramidol HCl in clinical trials.

1. Batterman, R. C.: Ann. New York Acad. Sc. *86*:203, 1960. 2. O'Dell, T. B.: Ann. New York Acad. Sc. *86*:191, 1960. 3. O'Dell, T. B., *et al.*: J. Pharmacol. & Exper. Therap. *128*:85, 1960. 4. O'Dell, T. B., *et al.*: Fed. Proc. *18*:1094, 1959. 5. Gray, A. P., *et al.*: J. Am. Chem. Soc. *81*:4347, 1959. 6. Wainer, A. S.: Clin. Med. *7*:2331, 1960. 7. Clinical data from the files of the Medical Dept., Irwin, Neisler & Co., 1959. 8. Batterman, R. C., *et al.*: Am. J. Med. Sc. *239*:315, 1959.

IRWIN, NEISLER & CO. DECATUR, ILLINOIS

restful sleep, refreshed awakening



This is the promise of Noludar 300... a night of deep, refreshing sleep without risk of habituation or toxicity... 6 to 8 hours of undisturbed rest... an easy awakening in the morning, free of fogginess or barbiturate "hangover." Try Noludar 300 for your next patient with a sleep problem. One capsule at bedtime. Chances are she'll tell you

"I slept like a log"

NOLUDAR® 300

brand of methyprylon

300-mg capsules

ROCHE LABORATORIES • Division of Hoffmann-La Roche Inc • Nutley 10, New Jersey

For the irritable G.I. tract

Milpath acts quickly to suppress hypermotility, hypersecretion, pain and spasm, and to allay anxiety and tension with minimal side effects.

AVAILABLE IN TWO POTENCIES

MILPATH-400—Yellow, scored tablets of 400 mg. Miltown (meprobamate) and 25 mg. tridihexethyl chloride.
Bottle of 50.

Dosage: 1 tablet t.i.d. at mealtime and 2 at bedtime.

MILPATH-200—Yellow, coated tablets of 200 mg. Miltown (meprobamate) and 25 mg. tridihexethyl chloride.
Bottle of 50.

Dosage: 1 or 2 tablets t.i.d. at mealtime and 2 at bedtime.

Milpath®

®Miltown + *anticholinergic*

WALLACE LABORATORIES *Cranbury, N. J.*

when menstrual cramps make the lightest task a burden

VASODILAN®

Isoxsuprine hydrochloride, Mead Johnson

myo- -vascular relaxant

provides direct, non-hormonal action on the myometrium to relieve painful uterine spasm or hypermotility

VASODILAN does not disturb normal menstrual rhythm or flow[1,2]...and can be prescribed safely with other therapies.[2]

PROOF OF CLINICAL EFFECTIVENESS
In one double-blind study,[1] good to excellent relief of severe menstrual cramps was noted in 79 per cent of the patients. Another investigator[3] notes satisfactory relief of dysmenorrhea in 83 per cent of the cases studied.

Contraindications: There are no known contraindications to oral administration of VASODILAN in recommended doses.

Cautions: VASODILAN should not be given immediately postpartum or in the presence of arterial bleeding. Parenteral administration is not recommended in the presence of hypotension or tachycardia. Intravenous administration is not recommended because of the increased likelihood of side effects.

Side effects: Few side effects occur when given in recommended oral doses. Occasional palpitation and dizziness can usually be controlled by dosage adjustment. Single intramuscular doses of 10 mg. or more may result in hypotension or tachycardia.

Dosage: For menstrual cramps, give 10 or 20 mg. (1 or 2 tablets) three or four times daily, 24 to 72 hours prior to expected onset of menstruation.

Supplied: 10 mg. tablets, bottles of 100; 2 cc. ampuls (5 mg./cc.) for intramuscular use, boxes of 6.

References: (1) Ratowsky, S., and Padernacht, E. D.: Clin. Med. *8*:512-514 (March) 1961. (2) Voulgaris, D. M.: Dysmenorrhea: Cramps or Psyche?, Scientific Exhibit, Am. Acad. G. P., Philadelphia, March 21-24, 1960. (3) Voulgaris, D. M.: Obst. & Gynec. *15*:220-222 (Feb.) 1960.

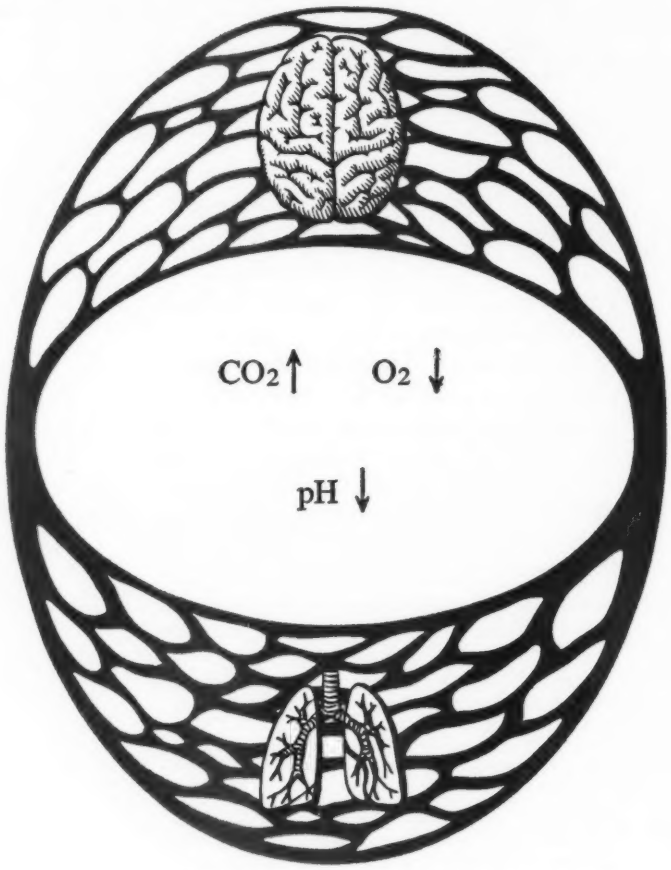
Mead Johnson Laboratories

Symbol of service in medicine

in respiratory disease

a selective respiratory stimulant

before therapy



these patient-complaints...

fatigue
somnolence
drowsiness
lethargy
mental confusion
irritability
personality changes
muscle weakness

in these clinical situations...

■ Frequent or refractory upper respiratory infectious or allergic disorders ■ Chronic bronchitis ■ "Heavy smoker's syndrome" ■ Geriatric respiratory involvement ■ Cardiopulmonary disease (cor pulmonale) ■ Chest cage abnormalities ■ Long exposure to occupational irritants; smog

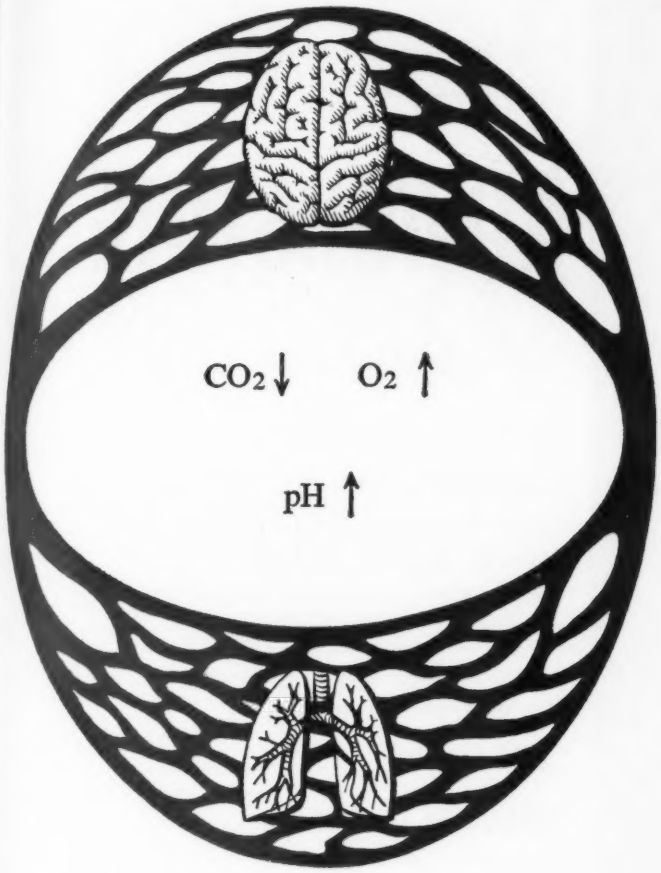
NOTE: EMIVAN VENTILATES. The effectiveness of EMIVAN is dependent upon a patent airway. Therefore, bronchodilators, corticosteroids, antimicrobials and wetting agents, and in severe cases, tracheal aspiration, if needed, should be employed as required to treat the underlying pulmonary disorder.

DOSAGE: To initiate therapy, 1 or 2 EMIVAN Tablets t.i.d. (Consult product brochure for complete dosage, administration, side effects, precautions and contraindications). ■ SUPPLIED: EMIVAN Tablets (uncoated providing 20 mg. vanillic diethylamide), bottles of 100 and 1000.

NEW... EMIVAN® TABLETS

brand of ethamivan

for treatment of symptoms of CO_2 accumulation



with Emivan

may be the result of CO_2 accumulation...

Consider that their specific complaints may be the consequences of CO_2 retention *(hypercapnia)* and secondary reduced oxygen saturation *(hypoxia)* due to hypoventilation.

and can be alleviated safely with EMIVAN

EMIVAN selectively stimulates the medullary respiratory center to increase the *depth* of breathing and (to a lesser extent) the *rate* of breathing . . . *without* cardiovascular side effects, neurological damage, or secondary post-stimulatory depression.

For the emergency treatment of the comatose or severely depressed patient (when due to depressant overdosage or severe pulmonary involvement): *INTRAVENOUS EMIVAN, can be life-saving*

U.S. VITAMIN & PHARMACEUTICAL CORP.
Arlington-Funk Laboratories, division
800 Second Ave., New York 17, N.Y.

In summer respiratory allergies,

the treatment problem is to relieve congestion. Valuable as antihistamines are against sneezing, itchy, weeping eyes and rhinorrhea, they are less effective against nasal congestion.[1]

NOVAHISTINE® DECONGESTS

Novahistine provides more than simple antihistaminic effect. It shrinks congested mucous membranes (nasal, pharyngeal, laryngeal, conjunctival), opens up air passages, promotes sinus drainage, and helps prevent mouth breathing.

NOVAHISTINE LP TABLETS

8 to 12 hour relief with a single adult dose of 2 tablets. Each tablet contains 25 mg. phenylephrine HCl (a vasoconstrictor that does not increase pulse rate) and 4 mg. chlorprophenpyridamine maleate (a potent, well-tolerated antihistamine).

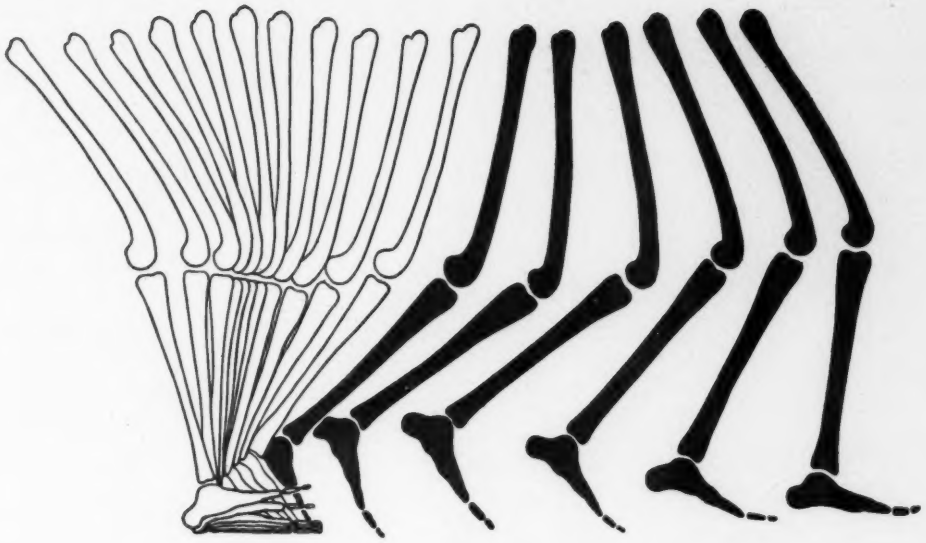
NOVAHISTINE ELIXIR

exceptionally palatable liquid that children like to take. Each 5 ml. teaspoonful contains 5 mg. phenylephrine HCl and 2 mg. chlorprophenpyridamine maleate.

1. Beckman, H.: *Pharmacology: The Nature, Action and Use of Drugs*, 2nd Ed. W. B. Saunders Company, Philadelphia and London, 1961, p. 673.

PM

PITMAN-MOORE COMPANY
Division of The Dow Chemical Company
Indianapolis 6, Indiana



Depo-Medrol was administered intra-articularly to 118 patients (250 injections) for disorders including rheumatoid arthritis, osteoarthritis, epicondylitis, and tendinitis.

Relief of pain and swelling was marked or complete in 104 of the 118 (88.1%); duration of response to a single injection was more than three weeks in 89 patients (75.4%) and more than six weeks in 39 of these.[1] "Post-injection flare-up was practically non-existent."[1]

relief within hours... lasting for weeks

Depo-Medrol* intra-articularly

Indications and dosages

Intra-articular, intrabursal and intratendinous injections of Depo-Medrol are useful for sustained anti-inflammatory effect and symptomatic relief in rheumatoid arthritis, osteoarthritis, bursitis, tendinitis, epicondylitis and other rheumatic disorders.

Intra-articular dosage depends on the size of the joint and the severity of the condition. Injections may be repeated, if necessary, at intervals of one to five weeks. A suggested dosage guide: Large joint, 20 to 80 mg.; medium joint, 10 to 40 mg.; small joint, 4 to 10 mg.

For administration directly into bursae, dosage may be 4 to 30 mg. (repeat injections are usually not needed).

For injection into the tendon sheath, 4 to 30 mg. is a usual range (in recurrent or chronic conditions, repeat injections may be needed).

Precautions

Depo-Medrol for local effect is contraindicated in the presence of acute infectious conditions. Infrequently, atrophic changes in the dermis may form shallow depressions in the skin at the injection site, but these usually disappear in a few months.

Depo-Medrol 40 mg. per cc.
Each cc. contains:

Medrol (methylprednisolone) acetate	40 mg.
Polyethylene glycol 4000	29 mg.
Sodium chloride	8.7 mg.
Myristyl-gamma-picolinium chloride	0.19 mg.
Water for injection	q.s.

Supplied: 1 cc. and 5 cc. vials

20 mg. per cc.
Each cc. contains:

Medrol (methylprednisolone) acetate	20 mg.
Polyethylene glycol 4000	29.6 mg.
Sodium chloride	8.9 mg.
Myristyl-gamma-picolinium chloride	0.19 mg.
Water for injection	q.s.

Supplied: 5 cc. vials

1. Norcross, B. M., and Winter, J. A.: Methylprednisolone acetate: a single preparation suitable for both intra-articular and systemic use, New York J. Med. *61*:552 (Feb. 15) 1961.

*Trademark, Reg. U. S. Pat. Off.
methylprednisolone acetate, Upjohn

The Upjohn Company, Kalamazoo, Michigan

Upjohn

COPYRIGHT 1961, THE UPJOHN COMPANY

this is
PLEXONAL
(ACTUAL SIZE AND SHAPE)

* Optimum results are obtained by gradually increasing the dosage to the maximum the patient can tolerate without the appearance of drowsiness. The following procedure for dosage adjustment has proven highly successful:

Take one tablet 2 times per day for 2 days. On the third day increase the daily dosage by one tablet. Similarly increase the dose every third day thereafter, to the point of drowsiness.

For example, if one tablet 4 times a day produces an obvious sleepy feeling, and on three the patient is comfortable, then the proper dose will be three tablets per day.

a superior daytime relaxing agent

(NOT A TRANQUILIZER)

PLEXONAL®

Comparative clinical studies show that PLEXONAL is superior to meprobamate or barbiturates for daytime relaxation[1,2]

"Plexonal was preferred (superior therapeutic effect) by 73.7 per cent of the patients, whereas 11.1 per cent preferred meprobamate, a ratio of 6.6 to 1. . . . 30.5 per cent noted adverse reactions to meprobamate as compared to 7 per cent in respect to Plexonal. . . . Plexonal gave better results than did any of the sedative or relaxing agents that have been available during our experience covering the previous 15 years."[1]

In 26 older age cardiac patients, "A comparison of Plexonal with the therapy previously employed showed that 17 did better on Plexonal than on meprobamate, 6 did better on meprobamate than on Plexonal and 3 responded the same to both."[2]

Indications: Anxiety, tension, apprehension, nervousness, irritability, restlessness, hyperexcitability.

Extremely well tolerated by geriatric patients who need mild sedation, as well as by depressed patients.

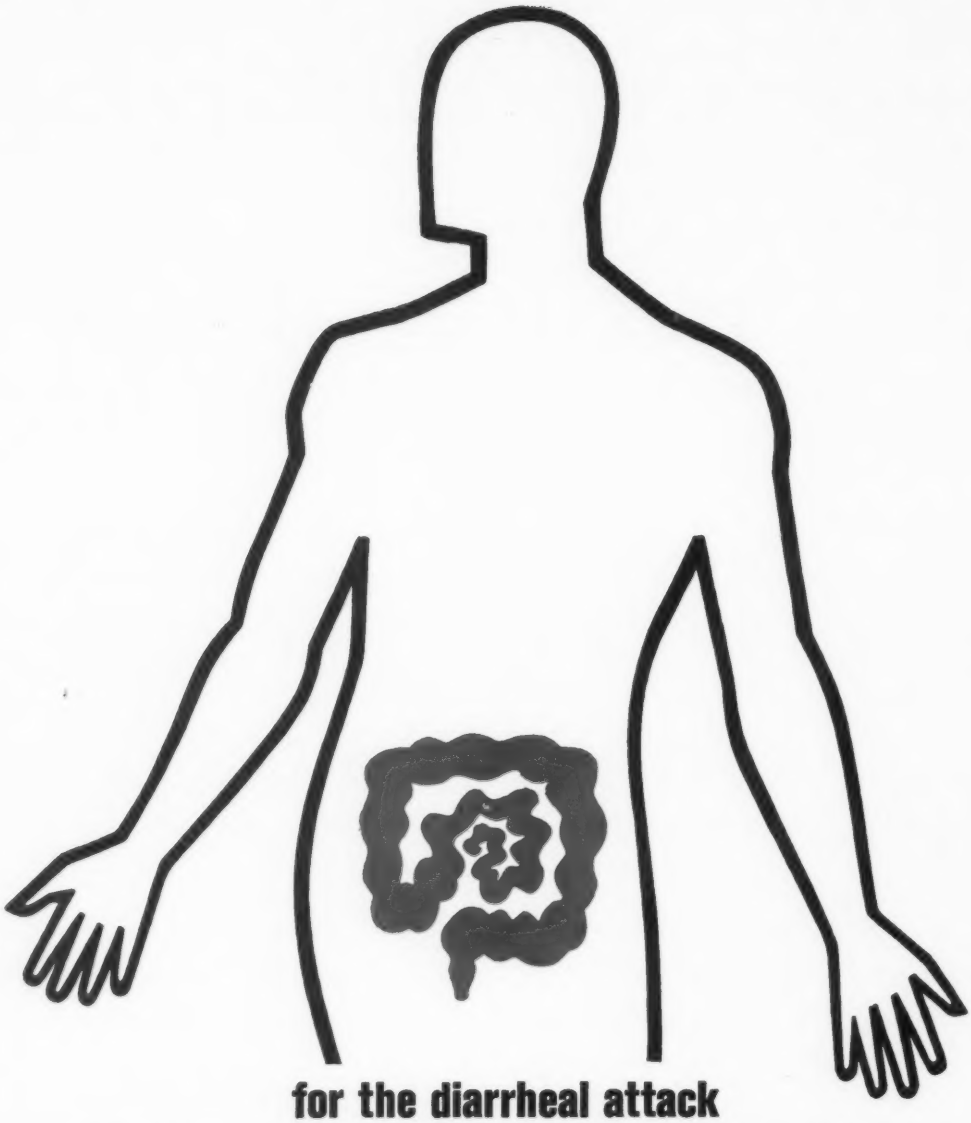
Dosage: One tablet 3 or 4 times a day is adequate for most patients. However, some require up to six tablets per day, whereas others respond adequately to as little as 1 tablet per day.

Composition: Each tablet contains sodium diethylbarbiturate 45 mg., sodium phenylethylbarbiturate 15 mg., sodium isobutylallylbarbiturate 25 mg., scopolamine hydrobromide 0.08 mg., dihydroergotamine methanesulfonate 0.16 mg.

1. Scheifley, C. H.: Proc. Staff Meet. Mayo Clin. 34:408 (Aug. 19) 1959.
2. Davanloo, H.: Am. J. of Psychiat. 117:740 (Feb.) 1961.

ORIGINAL RESEARCH SERVING THE PHYSICIAN

SANDOZ



for the diarrheal attack

effective—eradicates enteric bacterial pathogens

selective—does not eradicate the normal intestinal flora[1]

FUROXONE® LIQUID

brand of furazolidone

New, convenient prescription size: bottle of 2 oz. Also: bottle of 16 oz.

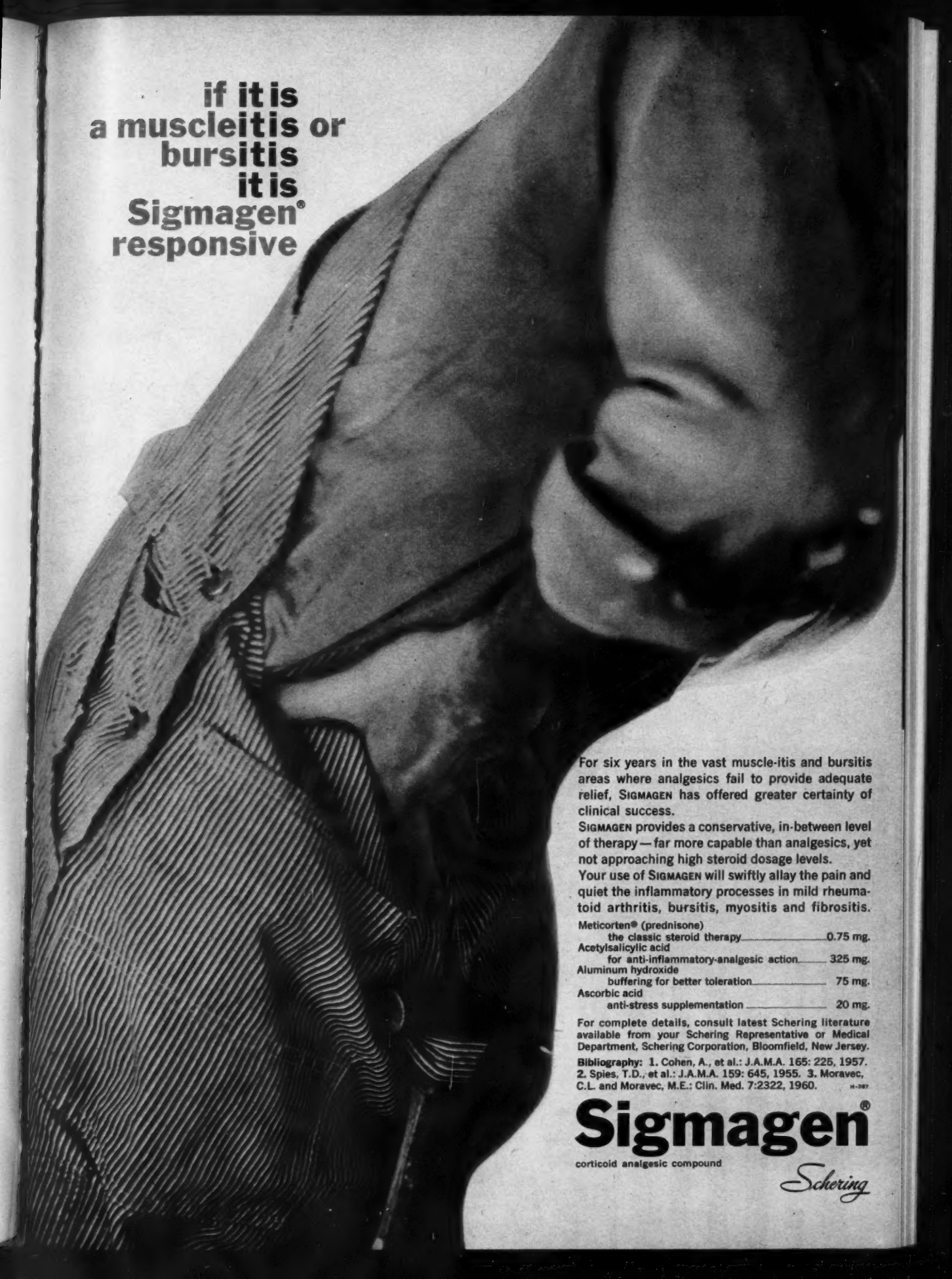
■ Exceptionally broad bactericidal range includes species and strains now resistant to other antimicrobials ■ Virtually nontoxic ■ Does not encourage monilial or staphylococcal overgrowth ■ Has not induced significant bacterial resistance ■ Dosage may be found in your PDR.

FUROXONE LIQUID is a pleasant orange-mint flavored suspension containing FUROXONE 50 mg. per 15 cc., with kaolin and pectin.

1. Mintz, A. A.: Antibiot. Med. 7:481, 1960.

EATON LABORATORIES, Division of The Norwich Pharmacal Company, NORWICH, NEW YORK

A-52



if it is a muscleitis or bursitis it is Sigmagen® responsive

For six years in the vast muscle-itis and bursitis areas where analgesics fail to provide adequate relief, SIGMAGEN has offered greater certainty of clinical success.

SIGMAGEN provides a conservative, in-between level of therapy—far more capable than analgesics, yet not approaching high steroid dosage levels.

Your use of SIGMAGEN will swiftly allay the pain and quiet the inflammatory processes in mild rheumatoid arthritis, bursitis, myositis and fibrositis.

Meticorten® (prednisone) the classic steroid therapy	0.75 mg.
Acetylsalicylic acid for anti-inflammatory-analgesic action	325 mg.
Aluminum hydroxide buffering for better toleration	75 mg.
Ascorbic acid anti-stress supplementation	20 mg.

For complete details, consult latest Schering literature available from your Schering Representative or Medical Department, Schering Corporation, Bloomfield, New Jersey.

Bibliography: 1. Cohen, A., et al.: J.A.M.A. 165: 225, 1957. 2. Spies, T.D., et al.: J.A.M.A. 159: 645, 1955. 3. Moravec, C.L. and Moravec, M.E.: Clin. Med. 7:2322, 1960.

H-397

Sigmagen®

corticoid analgesic compound

Schering

NEW—the first complete HEMATINIC at a cost comparable to straight iron therapy

STUARTINIC

in a one tablet dose

STUARTINIC provides the highest amount of elemental iron in a single tablet.

Complete
Therapeutic amounts of ferrous fumarate plus a bonus of Vitamin B Complex and Vitamin C.

More effective
More effective than ferrous gluconate or ferrous sulfate.*

Better tolerated
Less irritating, less nauseating, less toxic than other iron preparations.**

Lower in cost
The lowest cost complete Hematinic for iron deficiency anemias.

One tablet dosage
One small tablet per day provides enough iron for most patients.

Each STUARTINIC tablet provides:	
IRON (from ferrous fumarate)	100 mg.
COPPER SULFATE	2.5 mg.
VITAMIN B COMPLEX	
B_1 (thiamine mononitrate)	2 mg.
B_2 (riboflavin)	2 mg.
B_6 (pyridoxine hydrochloride)	0.5 mg.
Niacinamide	10 mg.
d-Calcium Pantothenate	2 mg.
Liver (desiccated)	100 mg.
VITAMIN C (ascorbic acid)	50 mg.

Available at all pharmacies in bottles of 100 tablets.

Blood, 15:540 (April) 1960.

Am. Pract. & Digest Treat., 10:461 (March) 1959.

11888 4102

Stuart

THE STUART COMPANY
PASADENA, CALIFORNIA

Kills pain.....stops tension

For neuralgias, dysmenorrhea, upper respiratory distress and postsurgical conditions—new compound of Soma, phenacetin and caffeine kills pain, stops tension, reduces fever—gives more complete relief than other analgesics...acts fast, relief lasts four to six hours

Composition: 200 mg. Soma (carisoprodol), 160 mg. phenacetin, 32 mg. caffeine. **Dosage:** 1 or 2 tablets q.i.d. **Supplied:** Bottles of 50 apricot-colored, scored tablets.

Also Available As
SOMA COMPOUND + CODEINE

Soma Compound boosts the effectiveness of codeine. Therefore, SOMA COMPOUND + CODEINE contains only ¼ grain of codeine phosphate to relieve the more severe pain that usually requires ½ grain. Otherwise, its composition—and dosage—is the same as Soma Compound. Supplied in bottles of 50 white, lozenge-shaped tablets.

soma® Compound

630-3929

WALLACE LABORATORIES / Cranbury, N. J.

the first complete physiologic regulator of female cyclic function

ENOVID®

(brand of norethynodrel with ethynylestradiol 3-methyl ether)

The basic action

ENOVID closely mimics the balanced progestational-estrogenic action of the functioning corpus luteum. This action is readily understood by a simple comparison. In effect, ENOVID *induces a physiologic state which simulates early pregnancy — except that there is no placenta or fetus.* Thus, as in pregnancy, the production or release of pituitary gonadotropin is inhibited and ovulation suspended; a pseudodecidual endometrium ("pseudo" because neither placenta nor fetus is present) is induced and maintained. Further, during ENOVID therapy, certain symptoms typical of normal pregnancy may be noted in some patients, such as nausea — which is usually mild and disappears spontaneously within a few days — breast engorgement, some degree of fluid retention, and often a marked sense of well-being. There is no androgenicity. ENOVID *is as safe as the normal state of pregnancy.*

The basic applications

1. Correction of menstrual dysfunction. *Cyclic* therapy with ENOVID controls dysfunctional uterine bleeding (menorrhagia, metrorrhagia) and often establishes a normal menstrual cycle in amenorrhea.

2. Ovulation suppression (to suspend fertility). For this purpose ENOVID is administered *cyclically,* beginning on day 5 through day 24 (20 daily doses). The ovary remains in a state of physiologic rest and there is no impairment of subsequent fertility. Continuous administration for more than two years is not recommended.

3. Postponement of the menses for reasons of health (impending hospitalization for surgery, during treatment of Bartholin's gland cysts, acute urethritis, rectal abscess, trichomonal or monilial vaginitis), travel, forthcoming marriage, or pressing business or professional engagements. For this purpose ENOVID may be started at any time in the cycle up to one week before expected menstruation. Upon discontinuation, normal cyclic bleeding occurs in three to five days.

4. Threatened abortion. *Continuous* ENOVID treatment provides balanced hormonal support for the endometrium in threatened or habitual abortion.

5. Endocrine infertility. ENOVID has been used successfully in *cyclic* therapy of endocrine infertility, promoting subsequent pregnancy through a probable "rebound" phenomenon.

6. Endometriosis. *Continuous* therapy with ENOVID corrects endometriosis by producing a pseudodecidual reaction with subsequent absorption of aberrant endometrial tissue.

The basic dosage

Basic dosage of ENOVID is 5 mg. daily in *cyclic* therapy, beginning on day 5 through day 24 (20 daily doses). Higher doses may be used with complete safety to prevent or control occasional "spotting" or breakthrough bleeding during ENOVID therapy, or for rapid effect in the emergency treatment of dysfunctional uterine bleeding and threatened abortion.

ENOVID is available in tablets of 5 mg. and 10 mg.

Literature and references, covering over five years of intensive clinical study, available on request.

SEARLE *Research in the Service of Medicine*

...unfettered

From the beginning, woman has been a vassal to the temporal demands—and frequently the aberrations—of the cyclic mechanism of her reproductive system. Now, to a degree heretofore unknown, she is permitted normalization, enhancement, or suspension of cyclic function and procreative potential. This new physiologic control is symbolized in an illustration borrowed from ancient Greek mythology—Andromeda freed from her chains.

the parkinsonian patient is accepting invitations again!

COGENTIN®

Benztropine Methanesulfonate

for all forms of parkinsonism

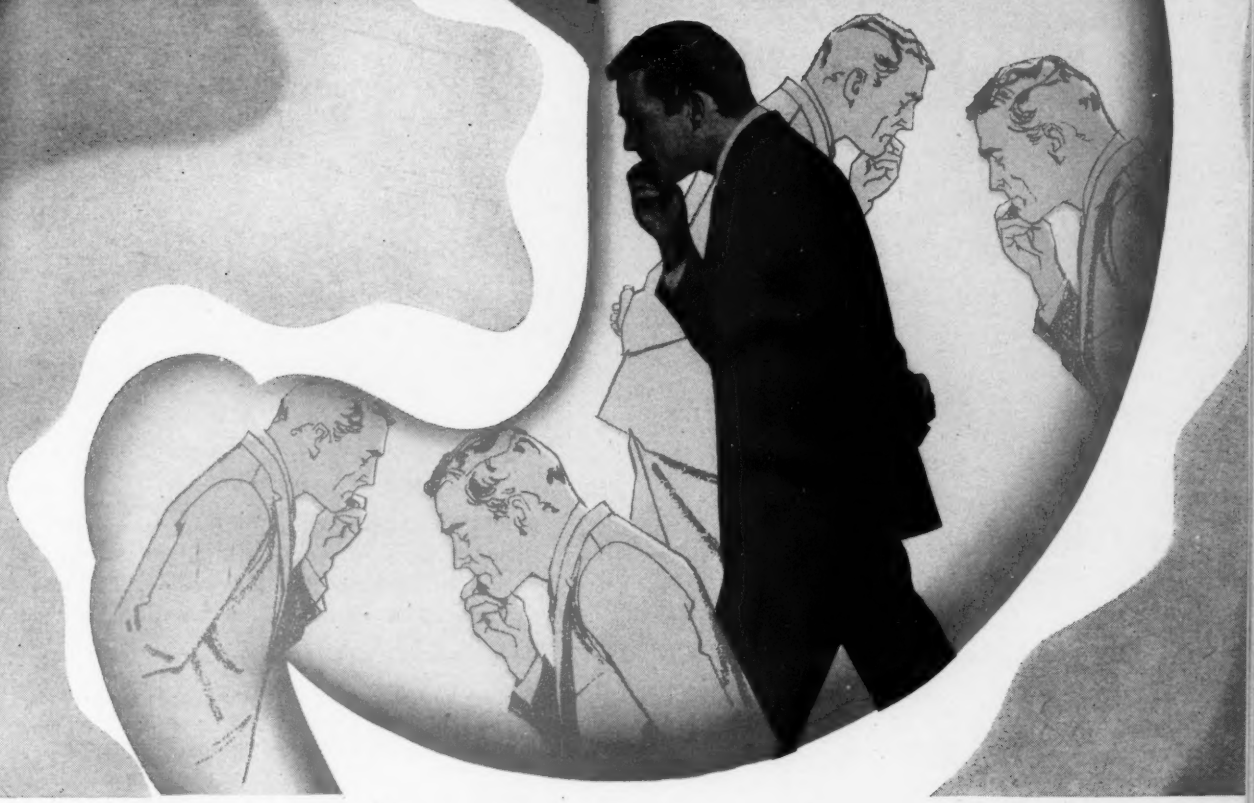
Parkinson's disease does not have to mean a retreat from living or reluctance to face family and friends. Treatment with "COGENTIN often causes a diminution or disappearance of the typical parkinsonian facies. It has the ability to control severe tremor and may control sialorrhea better than atropine."[1] Severe rigidity, contractures, and frozen states also respond to COGENTIN.[2] Its prolonged action permits 24-hour control of symptoms with one bedtime dose.[3]

Before prescribing or administering COGENTIN, the physician should consult the detailed information on use accompanying the package or available on request. Supplied: Tablets COGENTIN (quarterscored), 2 mg., bottles of 100 and 1000. New dose form: Injection COGENTIN, 1 mg. per cc., ampuls of 2 cc., boxes of 6.

References: 1. Finkel, M. J.: M. Times 86:1391, 1958. 2. Doshay, L. J., and Boshes, L.: Postgrad. Med. 27:602, 1960. 3. A. M. A. Council on Drugs: New and Nonofficial Drugs 1960, Philadelphia, J. B. Lippincott Company, 1960, p. 264. COGENTIN is a trademark of Merck & Co., Inc.

MERCK SHARP & DOHME Division of Merck & Co., INC., West Point, Pa.

When the stomach has a nervous patient!



BUTIBEL®

antispasmodic/sedative

relaxes the tense patient and his jittery stomach...without the sedative "build-up" many patients experience with phenobarbital preparations.

BUTIBEL combines the "time-matched" components—BUTISOL SODIUM® butabarbital sodium 15 mg. and extract of belladonna 15 mg.—each having approximately 5 hours' duration of effect. Thus, with Butibel there is no overlapping sedation, no antispasmodic gap—t.i.d. dosage keeps the patient comfortable without sluggishness.

Available as: BUTIBEL Tablets • Elixir • Prestabs® Butibel R-A (Repeat Action Tablets)

McNEIL McNEIL LABORATORIES, INC., Fort Washington, Pa.

uninterrupted relief of anxiety and tension

NEW

EQUANIL® L-A

Meprobamate, Wyeth

CAPSULES

Maintains control through controlled release

Now EQUANIL with the added convenience of twice-a-day dosage. EQUANIL *L-A* controlled-release capsules provide uninterrupted control of anxiety and tension.

Effective and specific in action, EQUANIL *L-A* does not produce ataxia, extrapyramidal symptoms, or undue sedation. Side reactions are rare; held to a minimum by freedom from cumulative effect.

For further information on limitations, administration and prescribing of EQUANIL *L-A*, see descriptive literature or current Direction Circular.

Wyeth Laboratories Philadelphia 1, Pa.

Wyeth

Helps manage the GI patient all through the day and night

A Vacation from Hay Fever is a Real Vacation

ANYWHERE – ANYTIME

Just a "poof" of fine **NTZ** *spray brings relief* **IN SECONDS, FOR HOURS**

NTZ is a potentiated, balanced combination of these well known synergistic compounds:

Neo-Synephrine® HCl, 0.5%
– dependable vasoconstrictor and decongestant.

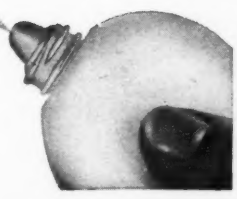
Thenfadil® HCl, 0.1%
– potent topical antihistaminic.

Zephiran® Cl, 1:5000
– antibacterial wetting agent and preservative.

NTZ®

NASAL SPRAY

Supplied in leakproof, pocket size squeeze bottles of 20 cc.



Winthrop LABORATORIES
New York 18, N. Y.

serenity without somnolence

with sharpened mental acuity and restoration of normal drive

Permitil®

Fluphenazine dihydrochloride

Chronotabs®

sustained-action tablets

just one 1 mg. tablet daily, for all hours of the waking day

Supplied: Permitil Chronotabs, 1 mg., in bottles of 30 and 250. Also available, Permitil Tablets, 0.25 mg., in bottles of 50 and 500.
Complete information on the use of this drug is available on request.

WHITE LABORATORIES, INC., Kenilworth, New Jersey White

As the greatest dental benefits of Sodium Fluoride are derived during infancy and early childhood:

PEDIATRIC VITAMINS
PLUS SODIUM FLUORIDE

provide
proper
nutritional
support
plus
prophylaxis
against
future
dental
caries

FUNDAMENTAL VITAMINS PLUS SODIUM FLUORIDE

Funda-Vite® (F)

PEDIATRIC DROPS

Each 0.6 ml. provides, 400 U.S.P. units vitamin D, 30 mg. vitamin C and 0.5 mg. fluorine (as sodium fluoride). *Available in 30 ml. and 50 ml. bottles with calibrated droppers.*

MULTIPLE VITAMINS PLUS SODIUM FLUORIDE

Quanti-Vite™ (F)

PEDIATRIC DROPS

Each 0.6 ml. provides, 3,000 U.S.P. units vitamin A, 400 U.S.P. units vitamin D, 60 mg. vitamin C, 1 mg. vitamin B_1, 1.2 mg. vitamin B_2, 1 mg. vitamin B_6, 10 mg. niacinamide and 0.5 mg. fluorine (as sodium fluoride). *Available in 50 ml. bottles with calibrated droppers.*

AVAILABLE ON PRESCRIPTION ONLY
CONTRAINDICATED IN COMMUNITIES WITH FLUORIDATED DRINKING WATER.

HOYT

SAMPLES AND LITERATURE — Write Medical Department
HOYT PHARMACEUTICAL CORP., NEWTON 58, MASSACHUSETTS
PIONEERS IN PEDIATRIC VITAMIN-FLUORIDE SUPPLEMENTS

*
NOTE:
CONTINUE VITAMIN-FLUORIDE SUPPLEMENTS DURING THE SUMMER

Daily administrations of Funda-Vite(F) or Quanti-Vite(F) should be consistent and continuous if substantial dental benefits are to be anticipated.

FLINT, Eaton & Company
DIVISION OF BAXTER LABORATORIES, INC.
MORTON GROVE, ILL.

COMPOSITION: One FERROLIP Tablet supplies 333 mg. of FERROLIP (iron choline citrate chelate), equivalent to 40 mg. of elemental iron. One teaspoonful (5 ml.) of FERROLIP 50 mg. Syrup contains 417 mg. of FERROLIP, equivalent to 50 mg. elemental iron. One teaspoonful (5 ml.) of FERROLIP 20 mg. Syrup contains 166 mg. FERROLIP, equivalent to 20 mg. elemental iron. Each ml. of FERROLIP Pediatric Drops contains 208 mg. FERROLIP, equivalent to 25 mg. elemental iron in a pleasantly flavored, nonalcoholic, sorbitol vehicle.

ACTION AND USES: For treatment of iron-deficiency anemias. The iron in FERROLIP is held as a *chelate complex* similar to the way iron is held in the hemoglobin molecule. As a result, *unlike freely dissociated iron salts,* FERROLIP does not release high concentrations of free ionic iron which have been reported to cause G.I. distress. And the iron *stays in solution throughout the pH range of the G.I. tract* for greater absorption and utilization. FERROLIP is *tolerated by patients who can't tolerate any other iron preparation.* It can even be given on an empty stomach. FERROLIP is also much safer to give as there is *no mass release of free iron into the serum with subsequent risk of toxic elevations.* The iron is released at a physiologic rate. Thus, an *excellent therapeutic response* can be achieved with greater safety and with few, if any, side effects.

ADMINISTRATION AND DOSAGE: Adults: 1 to 2 FERROLIP tablets or 1 to 2 teaspoonfuls of FERROLIP 50 mg. Syrup t.i.d.; children, 6 years and older: 1 FERROLIP tablet or 2 teaspoonfuls of FERROLIP 20 mg. Syrup t.i.d. Pediatric Drops: 0.5 cc. (9 drops) supplies 1.5-2.5 M.D.R. for prophylaxis in infants and children up to 6 years; therapeutic dose: multiples of 1 cc. (18 drops—25 mg.) as determined by physician.

HOW SUPPLIED: FERROLIP Tablets: bottles of 100 and 1000. FERROLIP 50 mg. Syrup: pints. FERROLIP 20 mg. Syrup: pints and gallons. FERROLIP Pediatric Drops: 30 cc. plastic, squeeze bottles.

ALSO AVAILABLE: FERROLIP Plus Tablets—for the treatment of microcytic and macrocytic anemias, combine ferrocholinate with the essential B vitamins including B_{12} and vitamin C. One tablet b.i.d. In bottles of 60 and 500 tablets. Also FERROLIP Plus Liquid: 1 or 2 teaspoonfuls t.i.d. In pint bottles.

FERROLIP OB Tablets—a comprehensive hematinic formulation for optimal supplementation during gestation—combines ferrocholinate; calcium salts; the essential B vitamins including B_{12}; vitamins A and D; and vitamin C. One tablet t.i.d. In bottles of 100 tablets. Also FERROLIP-T—an exceptionally palatable liquid supplying high potencies of vitamin B_1 and B_{12} to stimulate appetite in finicky eaters and convalescing individuals of all ages, and to promote optimal growth in below-par children, plus generous amounts of vitamin B_6 to improve protein utilization, and iron in the form of FERROLIP to overcome any concomitant iron-deficiency anemia. One teaspoonful daily. In bottles of 4 fluid ounces.

U.S. Pat. 2,575,611

LITERATURE: ON REQUEST

YOUR P.D.R.* GIVES YOU 6 GOOD REASONS TO PRESCRIBE FERROLIP® ORAL IRON

1. FERROLIP is *Chelated:* a process that binds iron in a chelate complex. Iron is released at a rate the body can handle, *not* in large amounts that irritate the gastric mucosa. **2.** FERROLIP is not astringent—does not precipitate protein—*is* soluble in both acid and alkaline media. **3.** FERROLIP remains in solution throughout the pH range of the G.I. tract, permitting maximum utilization and absorption. **4.** FERROLIP is so well tolerated it can be given to any patient (even to patients with peptic ulcer). **5.** FERROLIP is safer to give—safer to keep in the home because chelated iron is essentially nontoxic. **6.** FERROLIP produces an excellent hematological response.[1]

*This listing prepared by FLINT, Eaton & Company for Physician's Desk Reference.

1. Franklin, M., *et al.*: JAMA *166*:1685, 1958.

FERROLIP®

FLINT, Eaton & Company
DIVISION OF BAXTER LABORATORIES, INC.
MORTON GROVE, ILL.

Clinically Proven

in more than 750 published clinical studies
and over six years of clinical use

Outstandingly Safe and Effective

for the tense and nervous patient

1. simple dosage schedule relieves anxiety dependably – without the unknown dangers of "new and different" drugs
2. does not produce ataxia, stimulate the appetite or alter sexual function
3. no cumulative effects in long-term therapy
4. does not produce depression, Parkinson-like symptoms, jaundice or agranulocytosis
5. does not muddle the mind or affect normal behavior

Usual dosage: One or two 400 mg. tablets t.i.d.
Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets; bottles of 50. Also as MEPROTABS*– 400 mg. *unmarked*, coated tablets; and in *sustained-release* capsules as MEPROSPAN®-400 and MEPROSPAN®-200 (containing respectively 400 mg. and 200 mg. meprobamate).
*TRADE-MARK

Miltown®

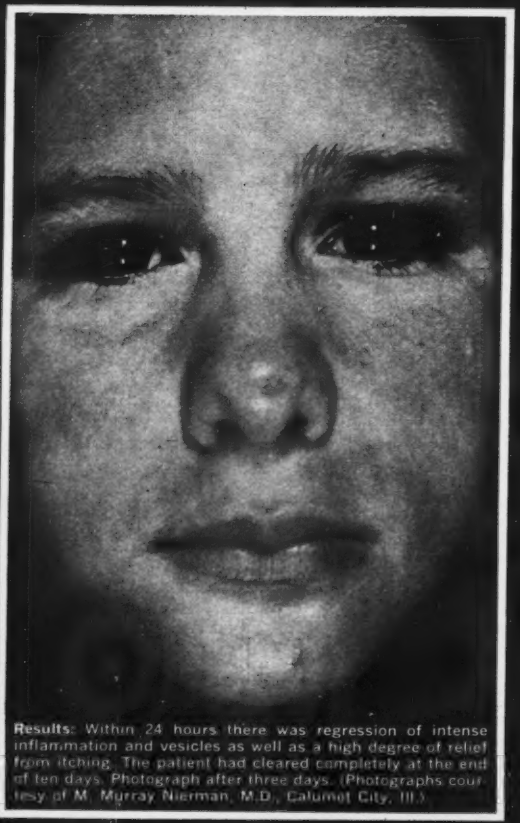
meprobamate (Wallace)

WALLACE LABORATORIES / *Cranbury, N. J.*

CM-4965

Male, Age 9; Dx: Poison Ivy Dermatitis.
Rx: Celestone, 1 tab. q.i.d. for two days, 1 tab. t.i.d. for two days, 1 tab. b.i.d. for one week, and 1 tab. daily for 7 days. Photograph shows the patient before treatment.

Allergic/inflammatory flare-up!



Results: Within 24 hours there was regression of intense inflammation and vesicles as well as a high degree of relief from itching. The patient had cleared completely at the end of ten days. Photograph after three days. (Photographs courtesy of M. Murray Nierman, M.D., Calumet City, Ill.)

Schering

A new achievement in corticosteroid activity: CELESTONE (betamethasone) has been called "perhaps the most important step ahead since the discovery of prednisone and prednisolone..."[1] and "unquestionably the most active adrenocortical steroid we have studied to date."[2] Pre-introductory clinical studies have established not only the high antiallergic/anti-inflammatory activity of CELESTONE but also its "low incidence of side effects...[and] absence of new toxic effects...."[3]

Three significant clinical advantages: In reporting results of a study of 154 dermatologic patients, treated up to 9 months, the investigators[1] cite as "three important clinical advantages of betamethasone [CELESTONE]: its almost uniform effectiveness at exceptionally low dosages, the striking absence of hormonal side effects in our series, and the ability of this corticosteroid to elicit a good therapeutic response in patients who had previously done poorly on other steroids."

Rapid remission with new Celestone

the first major advance in corticosteroid therapy in over 2½ years

Greater utility–ease of use: Gratifying results have been achieved with CELESTONE in a broad range of steroid-responsive disorders, from bronchial asthma and pollenosis to allergic dermatoses, inflammatory ocular diseases and rheumatoid arthritis. Rapid subsidence of allergic or inflammatory flare-up can usually be expected on average daily dosages of from 2 to 8 tablets. The single tablet strength (0.6 mg.) simplifies dosage schedules and facilitates proper dosage adjustment when patients are switched from other corticosteroids.

M-990

Safety-speed factor: Results with CELESTONE in 353 dermatologic patients[2] indicate that "its high degree of effectiveness and virtual absence of side effects in low dosages, which permit a simplified therapeutic regimen, make betamethasone [CELESTONE] an exceptionally useful corticosteroid in acute, short-term conditions."

For complete details, consult latest Schering literature available from your Schering Representative or the Medical Services Department, Schering Corporation, Bloomfield, New Jersey.

Bibliography: 1. Gant, J.Q., and Gould, A.H.: Betamethasone: A Clinical Study. Paper presented at First Conference on the Clinical Application of Betamethasone – A New Corticosteroid, New York City, May 8, 1961. 2. Nierman, M.M.: The Use of Betamethasone in Dermatology. *Ibid.* 3. Frank, L.: The Place of Betamethasone in Dermatologic Practice. *Ibid.*

NEW CELESTONE™

(betamethasone) **Tablets, 0.6 mg.**

CLINICAL RESULTS

in lower G.I. disorders

from reports on 309 cases

number of patients	diagnosis	number improved
42	ULCERATIVE COLITIS	32
40	SPASTIC COLITIS	39
47	PRIMARY SPASTIC COLON	35
124	IRRITABLE COLON	84
6	DIVERTICULITIS	6
50	MISCELLANEOUS CONDITIONS	39

CANTIL® Effective, Selective Therapy for PAIN, CRAMPS, DIARRHEA

mepenzolate bromide

"...THE MOST EFFECTIVE AVAILABLE COLONIC ANTICHOLINERGIC DRUG."[1]

"CANTIL relieves or reduces diarrhea, distention and pain in many patients with functional and organic colon disorders."[2] It provides "...unusually effective control of various obstinate diarrheas...."[3] The activity of CANTIL is "...confined principally to the lower gastro-intestinal tract...."[3] "It is singularly free of the side-effects commonly encountered with anticholinergics."[2]

DOSAGE AND CONTRAINDICATIONS: One or two tablets three times a day, preferably with meals, and one or two tablets at bedtime. CANTIL should be withheld in glaucoma.

TWO FORMS: CANTIL (plain) – 25 mg. scored tablets, bottles of 100 and 250. CANTIL with Phenobarbital – 25 mg. CANTIL and 16 mg. phenobarbital (warning: may be habit forming), scored tablets, bottles of 100 and 250.

1. Kleckner, M. S., Jr.: J. Louisiana M. Soc. *108*:359, 1956.
2. Riese, J. A.: Am. J. Gastroenterol. *28*:541, 1957.
3. Kleckner, M. S., Jr.: Clin. Res. Proc. *5*:19, 1957.

78261

LAKESIDE

The effect of staples on epiphysial growth

*JAMES M. EATON, D.O.**

Attempts at influencing the growth of an extremity have long been a matter for continued study by orthopedic surgeons. The objective is to obviate the use of unsightly and uncomfortable shoes with elevated soles and heels. These shoes have many disadvantages, notably the secondary deformities and malfunctions they can produce, and the unfortunate cosmetic effect, which may itself have widespread influence on the patient.

It would seem that lengthening the extremity would be the ideal treatment; however, such surgical procedures have proved to be formidable, since they require extensive freeing of the soft tissues as well as an osteotomy. In addition, a major operation is performed upon an already devitalized limb, and convalescence is unduly prolonged. Complications of such operations are many; they include deformities of the foot and knee, bowing of the tibial fragments with nonunion or malunion, limitation of motion at the ankle, weakening of the leg muscles, neural complications caused by overstretching of nerves, circulatory disturbances, infection, and aseptic necrosis of bone.

Restriction of growth in the opposite extremity is simpler, safer, and, in my opinion, more desirable.

Notes on technic and timing

In the study of the individual case, accurate leg lengths are determined by roentgenographic measurement. However, my practice has been to study the effects of inequality of leg length on the superencumbent pelvis and spine. This is best accomplished by taking erect anteroposterior roentgenograms of the dorsal spine, lumbar spine, and pelvis, and by evaluating the effect of lift therapy in overcoming these secondary deformities. If lift therapy has little or no effect on the secondary deformities of the pelvis and spine, it is questionable whether a major operation would be justified. Serial x-ray determinations taken at intervals of 3 or 4 months will show the effect of lift therapy and give a clue to whether or not shortening procedures on the unaffected leg would be worth while.

The operation should be performed somewhat earlier than one might estimate from actuarial growth charts. It should come at a time that is more or less convenient to the patient, particularly at the earlier age. It rarely should be attempted after age 12 or before age 9.

Growth usually halts at age 14 in girls and age 16 in boys; so proper timing for attempts at epiphysial arrest or leg shortening is of utmost importance. It has been estimated that the lower femoral epiphysis contributes ⅜ inch of growth per year, while the upper and lower tibial epiphyses contribute about ¼ inch per year. One or more epiphyses may be closed at a time sufficiently in advance of maturity to make up for the eventual shortening.

There have been more elaborate formulas established for this growth schedule, but unfortunately growth is not always predictable. Because of this, some form of temporary epiphysial arrest has been favorably received; one may then watch by serial x-ray films the growth in the short extremity and discontinue the epiphysial arrest to permit normal growth at the proper time.

Permanent epiphysial arrest has failed in many instances because of failure of the diseased extremity to contribute its expected growth, failure of the procedure to effectively stop growth, and difficulties arising from misjudgment of skeletal age, changes in pattern of maturation in the individual child, and relative size of the individual. Stapling has the theoretic advantage that growth may resume

Presented at the annual meeting of the American Osteopathic Academy of Orthopedics, Dallas, Texas, October 31, 1960.

*Deceased January 1, 1961.

after removal of the staple; however, this does not always happen. The possible advantages that may accrue to stapling procedures, such as the resumption of growth after removal of the staple, must be weighed against the frequent complication of secondary operations. Although most of the complications are relatively insignificant, the procedure does have its uncertainties and difficulties. Restapling and removal of staples are bothersome to the patient, although the immediate postoperative course is less disabling and requires a shorter hospitalization than with epiphysiodesis. Normal function returns sooner.

Evidence of most complications can be seen within 12 to 18 months after operation. Correction should be accomplished promptly after disorders are discovered. If staples are not holding well, they should be reinserted rather than leaving them and allowing deformity to develop.

The principal complications which arise are asymmetrical fusion, slow fusion, clinical infection, neuromuscular dysfunction, and overcorrection discrepancy.

Experience has shown that heavy staples of a rather large size must be used to limit the activity of the distal femoral epiphysis. Smaller staples, although still heavy, are used on the proximal tibial epiphysis. Most operators use three staples as a basic unit on either side. In most cases it is advisable to perform an epiphysiodesis on the proximal fibular epiphysis.

Before attempting the stapling procedure it is well to study carefully the undulations of the epiphysial plate of both tibia and femur, because of the many peculiarities in its movement that will influence the positioning of the staples.

An elaborate description of the technic for applying staples will not be given here, but certain principles will be outlined, which must be followed if successful temporary epiphysial arrest is to be obtained.

One should think of the tibia and femur as cylinders with longitudinal medial axes. When the epiphysial zone has been determined, the staples are applied straddling it. They are angulated and driven in the direction of the theoretic long medial axes of the bones.

In approaching the posterior aspect of the femoral condyle it is necessary to flex the knee to an angle of 60 to 70 degrees in order to obtain proper exposure. It is therefore necessary that the patient be draped for surgery in such a way that full mobility of the knee joint is possible, so that required changes of position can be made during the operation.

I have tried placing the staples both with and without exposure of the epiphysial zone by raising a slight flap of periosteum. Whether or not this is done, I do not recommend burying the staples under the periosteum, because of the difficulties that will be encountered in removing them later. The staples should be driven flush with the periosteum, but not under it.

I would also suggest placing a strong strand of stainless steel wire under the heads of the staples, and then fastening the wire over the top of the staples above the fascial plane after the staples have been seated, to make identification easier when removal is desired. The staples sometimes become buried in an overgrowth of bone; this makes their secondary removal a major operative procedure. In such a case widespread damage can be done to the epiphysis, and the possibility of secondary infection is also increased.

Meticulous attention to detail in the application of staples is important if complications are to be avoided. I believe that complications arise only in the face of faulty technic. The staples must be placed squarely and directed toward the central axis of the bone. If a staple is slanting so that one corner protrudes, it will surely pull out and have to be replaced later. Such errors in placement must be corrected at the time of the first operation.

I have used exclusively staples manufactured by the Austenal Laboratories, who sell Vitallium metal appliances. Recently I have used the Vitallium epiphysial staple which they designed in cooperation with Dr. W. P. Blount of Milwaukee; I have found these staples to be excellent from standpoints both of usage and lack of electrolytic reactions.

From the position of the epiphysial plate on the tibia it would be noted that the staples should be driven in an upward direction. This always leads to difficulty unless one is guided by anteroposterior and lateral roentgenograms taken in the operating room. Otherwise, the angulation is likely to be too acute and the staples will enter the knee joint, necessitating removal or replacement.

While waiting for the x-ray films to be developed for viewing, the epiphysial plate of the proximal fibula is exposed, at least half of it is destroyed by currettement, and the cavity is filled with bone chips.

After the x-ray films are ready, any changes in positioning of the staples should be made, before closure of the skin.

Except in one case, I have not found it necessary to apply any form of immobilizing apparatus except a light posterior metal splint. This appliance seems to give the patient considerable relief from incision pain, and it is usually removed in 2 or 3 days so that the patient can begin active movement and weight bearing, as pain permits.

Continued observation of the patient is imperative after hospital discharge. This responsibility must be assumed by the surgeon and not by the referring physician, as a regular practice in this type of operation. This matter should be discussed in advance, stressing the importance of follow-up examinations for the ultimate desired result.

Probably the greatest change will take place in the first year, although changes have been noted when the staples have been in position for 2 or 3 years. I suppose that if there had been no change in leg length there would be no indication for removal of the staples, but it has been my practice

to remove them even though growth has ceased and they no longer affect extremity length.

It has been my practice to have erect roentgenograms taken of these youngsters every 3 or 4 months, to study the effect of the changing leg length on the superencumbent pelvis and lumbar and dorsal spine. There is seldom any deformity in gait or posture during this process except that caused by the original discrepancy in leg length; this is always compensated for by suitable lifts during the period of change. The height of the lift is changed as leg length becomes equalized.

The time for removal of staples is dependent upon the growth of the deficient extremity; when it is of proper length to obviate deformities in the pelvis and spine, the staples should come out. There is no definite time schedule that can be proposed because of wide individual differences.

Two precautions should be observed to ensure successful timing: First, the staples must be inserted early enough to ensure correction before growth is completed. Second, the patient must be observed frequently enough that the staples can be removed at the proper time. It is clinical result and not calculated growth that determines the time for removal.

Much concern has been voiced over the possible premature closure of the epiphysial plate by means of stapling. There are three roentgenographic signs that would suggest this eventuality: (1) disappearance of fine metaphysial trabeculae, (2) formation of a dense layer of subepiphysial bone, and, eventually, (3) thinning of the epiphysial plate. The exact point at which the process is reversible remains a matter for continuing study.

Illustrative cases

Case 1 • This patient was a young girl of 9 years when first seen. During the first 6 months of observation, lift therapy was applied. It was determined that there was actual shortening of 1 inch on the involved right lower extremity, producing unleveling of the sacral base and scoliosis in the superencumbent lumbar spine. This could be corrected by application of a 1-inch lift on the right side.

Epiphysial arrest by stapling was performed on the left tibia and femur on March 31, 1950. X-ray studies at that time indicated that a tibial staple was penetrating the epiphysial plate; so it was removed and reinserted.

The patient was kept under observation and examined every 3 or 4 months. The size of the lift was gradually reduced until April 16, 1951, when roentgenographic studies indicated the leg length to be almost equal. The scoliosis in the superencumbent lumbar and dorsal spine was considered corrected. On June 19 of that year the staples were removed.

The patient has been examined by x-ray at intervals of 1 year. The most recent studies, on February 23, 1959, indicated that leg length was still almost equal, with minimal sacral base unleveling to the left side and minimal alteration in lumbar vertebral mechanics.

This case represents a most satisfactory and ideal end result. The second case illustrates the numerous complications that can arise from stapling operations.

Case 2 • This patient was 13 years old when first examined. Seven years before he had had an attack of anterior poliomyelitis, involving principally the right lower extremity. In June 1950 he had had a tendon transplantation and a stapling operation on the left knee to retard growth.

When I saw this patient all the staples in the femur had broken, and two on the lateral aspect of the tibia were also broken; this resulted in a gross genu varum deformity on the left side. On August 15, 1955, the staples were removed and an osteotomy was performed on the left tibia and fibula to correct the deformity.

The final roentgenographic studies in this case, taken June 26, 1956, indicated correction of the deformity. The erect studies were quite satisfactory. No lift therapy was recommended.

Summary

Epiphysial stapling appears to offer more rapid correction of leg-length inequality than other methods, and it is the only means for temporary epiphysial arrest. Although the procedure has been accompanied by a sizable number of complications, most of these are a result of mistakes in technic, which may not have been discovered until the operation was over. These complications necessarily increase the number of operations to be performed. The most meticulous and standardized of operative technics should be followed in operations on the region of the epiphysial plate in order to obtain a predictable postoperative result.

Discussion

DONALD SIEHL, D.O.,† Dayton, Ohio

I would like to re-emphasize several points which Dr. Eaton has made in the course of his paper. There is no need for serial roentgenograms to be taken more frequently than every 3 or 4 months. The growth differential must be determined by recheck roentgenograms, since it does not always follow the established formulas. The stapling procedure must be technically accurate. A large proportion of the clinical evaluation must be based on standing x-ray films of the pelvis, and not by measurement of leg length alone.

While my own experience with this procedure is somewhat limited, I have found it effective if used properly and when indicated. I believe it should be considered in individuals with gross

†Address, 1217 Salem Ave.

inequality (over ¾ inch) of leg length in patients under age 12, no matter what the cause of the inequality, rather than limiting its use to those having leg shortening from trauma or poliomyelitis. This is another instance where the patient must be considered as a whole. The effect of lower extremity abnormalities on the superencumbent spine is the determining factor as to whether or not surgical intervention of any type is indicated.

Discussion

JOHN P. WOOD, D.O.,‡ Birmingham, Michigan

Dr. Eaton has called attention to the fundamental details of epiphysial stapling and the effect which may be produced by it, and also to the pitfalls which one may encounter, laying stress on the immediate correction of any surgical error. Proper placement of the staple as it straddles the epiphysial plate becomes a matter of surgical skill and a knowledge of the configuration of this plate, combined with an ability to correlate this knowledge with roentgenographic findings—which procedure for examination should always be considered a part of the operation itself. The suggestion for using wire as a means of staple identification and localization is an excellent one.

Dr. Eaton has discussed stapling primarily as a method for retarding total extremity length and its relation to pelvic balance. However, I am sure he would not wish to forget the wide application of this method in treating angular deformities of the growing extremity, such as knock-knee, bowlegs, and the various flexion deformities seen in growing youngsters.

Inequality of leg length and angulation deformities have been problems for discussion among orthopedic surgeons for many years, and various methods have been employed to overcome these problems. Leg lengthening or shortening procedures are both heroic attempts at correcting leg inequality. The work of Blount and Clark[1] and others in stimulating interest in epiphysial arrest by mechanical means has been a forward step in this field. However, Pease[2] has called attention to the possibility of epiphysial stimulation, to produce lengthening in the short lower extremity at a time when the cartilaginous epiphysial plates are still normally functioning as growth centers. We have all seen the rather marked stimulation to growth which a fracture or infection will produce in a femur. It is my feeling that continued study should be given to this matter, and that in such cases as those Dr. Eaton has mentioned, epiphysial arrest should be used on one extremity and epiphysial stimulation on the other. I do not believe that one method should be used to the exclusion of the other, but that both should be tried in combination.

We would not wish to overlook sympathectomy in cases where inadequate circulation is a problem. In extremities which have been altered by poliomyelitis we would wish to consider this procedure in connection with the stimulation and arrest previously mentioned.

I hope that serious thought and trial will be given to the use of mechanical means for epiphysial stimulation as a means of overcoming growth deficiency in one of the lower extremities. We all appreciate that it is probably better to lengthen a bone than to shorten one, if such a thing can be accomplished in a relatively simple manner, or in combination with the procedure for arrest which Dr. Eaton so capably has described.

‡Address, 206 Wabeek Bldg.

1. Blount, W. P., and Clark, G. R.: Control of bone growth by epiphysial stapling; preliminary report. J. Bone & Joint Surg. 31-A:464-478, July 1949.

2. Pease, C. N.: Local stimulation of growth of long bones; preliminary report. J. Bone & Joint Surg. 34-A:1-24; 63, Jan. 1952.

Manipulative management of hypertension

THOMAS L. NORTHUP, D.O., D.Sc. (Ost.), Morristown, New Jersey*

Doubtless every osteopathic physician has a method by which blood pressure can be controlled to some extent. Almost any relaxing treatment or rest program will be somewhat effective, but the permanency of the reduction will necessarily depend on some basic change or structural correction.

After more than 30 years of practice, I know of no other modality that will as effectively maintain blood pressure at a safe level as appropriate osteopathic manipulative treatment. From among about 5,000 case records representing a wide variety of clinical problems treated with osteopathic manipulation, a long series of blood pressure records was selected for informal study, to illustrate the efficacy of this means of treatment. From this group were taken 100 recordings that showed maximal changes in both systolic and diastolic readings before and after treatment.

In these selected instances of maximal change, the average was 199 mm. Hg systolic and 123 mm. Hg diastolic before treatment, and 166 mm. Hg systolic and 114 mm. Hg diastolic after treatment. In this group, the average reduction in pressure immediately following treatment was 33 mm. Hg systolic and 9 mm. Hg diastolic.

In two instances, the systolic pressure dropped as much as 70 mm. Hg after a single treatment. In several instances the diastolic pressure dropped 20 mm. Hg. Of course, the average reduction in blood pressure following treatment would be considerably less; the extremely high pressures respond most spectacularly. However, this selected series does suggest that manipulative treatment has outstanding value in some cases.

Diagnosis

Successful manipulative management of this or any acute or chronic condition depends upon the ability of the operator to detect minute as well as gross structural lesions, either bony fixations or soft tissue tensions, and his skill in making corrections and relieving tensions. I learned palpatory evaluation of the pulse[1] before sphygmomanometers were in common use. Estimation of the blood pressure was then accomplished by compression of the radial pulse with the second and third fingers until it could not be felt by the index finger. While much time and patient effort are required to attain a reliable degree of accuracy, the practice of preliminary evaluation of blood pressure each time it is taken furnishes a splendid way to develop the palpatory acuity which is absolutely essential if one is to practice osteopathy at its best.

The evaluation of lesion patterns is greatly facilitated by having a carefully taken history of former injuries, having a definite knowledge of the normal movements of the parts involved, and having developed an acute palpatory sense. This ability to read tissue tensions and stress in osteopathic practice is no less important than for a blind man to read Braille. It should be developed to the point that cranial mobility may be felt and, as just suggested, blood pressure can be evaluated from the radial pulse. Any osteopathic physician with a sensitive touch can discover for himself that cranial sutures do permit motion. Moreover, he can observe, by testing for mobility of the temporal bones, the possibilities for development of osteopathic technic as it applies to the cranium.

A tentative diagnosis is the most important consideration after a carefully taken history and a detailed physical and structural examination. Time need not be spent in recording negative findings, but every positive one that seems to need consideration should be underlined. Whether hypertension is discovered during physical examination for other presenting symptoms or is itself the presenting symptom, it should be thoroughly studied. Blood pressure should be taken in both sitting and reclin-

*Address, 5 Franklin Place

There is empirical evidence that patients with hypertension can be greatly benefited by osteopathic manipulative treatment. Almost any method that relaxes tense tissues is helpful, but special emphasis is placed on cranial technics

ing positions, and a record made of both systolic and diastolic pressures.

Test treatments should be given by any general relaxing method, including rest, to determine the most positive way of reducing the pressure in the individual case before attempting any correction of bony lesions which requires the use of force. Three very good test treatments are (1) lower thoracic relaxation; (2) mild but persistent stimulation over the eighth and ninth thoracic vertebrae; and (3) upper cervical relaxation. The lesion pattern should be studied and specific corrections should be attempted very cautiously, and the pressure taken immediately after treatment; if it tends to rise, the treatment should be used that has previously been found most effective in reducing pressure.

About 15 years ago, I discovered that patients with nephritis were likely to have much higher pressures in the reclining position than while sitting, while the reverse was true in cases of "essential" hypertension. In acute congestive kidney conditions, the blood pressure quite often will be normal or nearly normal in the sitting position, but it will rise sharply by 20 to 40 points on reclining. Usually a few minutes of springing the segments of the eighth and ninth thoracic vertebrae will equalize the sitting and reclining pressures.

In the case of "essential" hypertension, where the pressure seems to be higher in the sitting position than while reclining, the most common lesions are restriction of motion at the occipitomastoid cranial sutures, fixations of the upper cervical spinal areas, or a combination of these. In my opinion, the individual with "essential" hypertension whose occipitomastoid sutures cannot be freed to normal mobility is in very serious condition and seldom responds favorably for very long to any form of treatment.[2] On the other hand, it has been found that if cranial technics designed to free restricted motion at the occipitomastoid sutures are successfully employed, the diastolic pressure is controlled much more effectively than by any other means.

Treatment methods

The plan of treatment must be based on a rational evaluation of the case. The patient must be under constant study and the symptoms re-evaluated each time he is seen. Treatment should be given frequently enough to maintain an optimum reduction of blood pressure, gradually lengthening the time between treatments to once a month, if possible. In patients with kidney involvement there should be a thorough relaxation of the lower thoracic area with correction of all lesions in the area. It is desirable to make all lesion corrections with as little stimulation as possible and only after the pressure has been reduced to a safe level by some method which has proved effective for the specific patient.

The immediate effect of lesion correction should be observed. Sometimes even slight force used in a normalizing technic will produce a rather sharp reaction and increased pressure, particularly if the patient is apprehensive. It has been my experience that slow-moving and easy manipulation produces the best results.

In cases where the systolic pressure is higher in the recumbent position and there is evidence of spinal lesions in the lower thoracic area, consider the possibility of renal disorders and give the first test treatment on that basis. Any method that relaxes tensions in the lower thoracic area will usually be effective. I have found that with the patient supine on the table and his hand next to the operator, under the operator's arm and grasping the operator's shoulder, and both hands of the operator engaging the lower thoracic spine, the operator can by swaying his body relax the lower thoracic area very effectively.

The technic which Bandeen[3] describes as stimulation over the eighth and ninth thoracic segments, to influence the function of the liver, produces spectacular results in some cases.

The technics just mentioned need no further description for osteopathic physicians. However, there is a technic that is effective in most types of "essential" hypertension, particularly in those with higher pressures in the sitting and standing positions, which should be described in more detail. This technic is hard to describe and harder to master and, while it is perfectly safe, the most difficult part is being gentle enough.

The patient lies supine on the table with a small pillow under his head, and the operator is seated at the head of the table. The operator's hands engage the temporal bones on both sides of the head with the index fingers extending along and protruding beyond the tip of the mastoid processes. The second and third fingers fit deeply into the contour of the upper cervical muscles below the transverse processes of the upper cervical vertebrae.

The only motion of the fingers is that of adaptation to allow them to engage the bony parts of the cervical muscles and to conform to the contour of the head. The entire motive power of the technic is from the shoulders of the operator, bearing down through the elbows and thus exerting traction as well as changing the elevation of the hands by leverage over the pillow and end of the table. The force upward is centered under the tip of the

mastoid process; this tends to rotate the temporal bone inward on the axis of its petrous portion. The extent of this rotation will depend on the freedom of the articular sutures about the temporal bones.

A very slow rhythmic motion is made at a slow count of five in each direction; this is continued for about 2 or 3 minutes or until there is a sense of complete body relaxation. It is well not to start any movement of the operator's shoulders until the fingers have perfectly adapted themselves to the cervical tissues. It is also vital that the forces of application are less than, or do not exceed, the tissue tension of the cervical area being treated. The secret of success with this treatment is in one's ability to keep the forces at or below the tension of the tissues under the operator's hands. The art of application is not easy to acquire but once it is mastered it will produce results that will repay one for the persistent effort.[4]

Blood pressure should be taken immediately before and after treatment. The patient should have rested for at least 10 minutes before the first reading. If possible, the pressure should be taken at two 10-minute intervals after the treatment until the reaction of the patient is established. If it is impractical to take the pressure after a resting period, it should be taken and recorded immediately after treatment, and recorded and taken before and after each succeeding treatment.

Each hypertensive patient with a systolic blood pressure of 180 mm. Hg. or higher should be given test treatments with various technics that have been found to reduce blood pressure, and the immediate results recorded. When the pressure is reduced to the lowest possible point by the most effective technic, all spinal lesions should be corrected, possibly only one at a single treatment. A record should be made of the immediate effect of the corrective treatment on the blood pressure and, if necessary, the technic that has been previously established as having the greatest result in lowering blood pressure should be applied. This procedure should always be followed whenever the blood pressure is dangerously high.

Possible mechanisms of treatment

Just how or why osteopathic manipulation acts to alleviate hypertension remains a matter for speculation. There are some possible explanations which could be offered. However, the important point is that it does work, and that at least for some types of hypertension it provides better relief for the patient than that other empirical method, drug sedation. It has the additional advantage of depending primarily upon the body's own resources to deal with its disorders, which means that it is safer for the patient than methods such as drug therapy, for which the physiologic basis is also poorly understood.

These thoughts about the possible mechanisms of manipulative treatment are offered as suggestions for future research, not as an apology for a treatment method which has had proved clinical benefit. It may be that some researcher, who is uninhibited by a preconceived resistance to the theory of mobility of the cranial sutures, and the participation of the connective tissues in the physiologic processes of the body, will be stimulated to carry out useful studies in this interesting and controversial field.

The technic which seems to have the broadest application to both systolic and diastolic pressures . . . consists of a gentle rocking of the temporal bones and gentle rotation of the upper cervical vertebrae with constant mild traction

A careful study of the basic principles of circulation and nerve reflex control is a basic essential. One of the cornerstones upon which this therapeutic method stands is the reflex coordination of body functions, of which vasomotor reflexes are an outstanding example. This may well point to the most potent cause of blood pressure changes.

One facet of this is that adequate nutrition of any tissue or organ requires an optimum pressure of nourishing fluid—blood, lymph, or cerebrospinal fluid—and that blood pressure influences markedly the pressure of other body fluids. It is also reasonable to assume that when these pressures fall locally below optimum levels as a result of some local or regional condition, the general blood pressure will be increased automatically through reflex controls, to furnish oxygen and other nutrients to these parts. Local stimulation or relaxation would have direct benefit in such a case.

The relation of the carotid sinus to hypertension is mentioned by many current writers. It is well known that destruction of this sinus will produce permanent hypertension in experimental animals. This would add more evidence to the thought that automatic reflexes are very important in production and hence in control of hypertension. Muscle tone doubtless has influence on blood pressure as well, although this in turn is under control of the nervous system. Manipulation designed to relax muscles is also empirically effective.

It is probably true that any procedure that relaxes any tense tissue will somewhat lower blood pressure, but it is most effective when use is made of centers that will cause the most extensive vasodilation in sphlanchnic and dermal areas or, if possible, the entire vascular system. Again empirically, the nerve centers and fibers that carry vasodilator impulses seem to be more susceptible to slow rhythmic mechanical stimulation than do the vaso-

constrictors. This observation can, of course, be used to advantage.

Without doubt there are many factors operative other than those suggested here. Page[5] has recently described what he calls the mosaic theory of hypertension. In this concept, a number of factors are described as "interdigitating" to produce the clinical syndrome of hypertension. One facet of this is a listing of components that determine tissue perfusion: neural components, chemical components, reactivity, volume, vascular caliber, viscosity, cardiac output, and elasticity of vessels. At exactly which point or points osteopathic manipulation would have an influence is unknown, even to those who apply it successfully. It is in this sense no more or less empirical than drug therapy but, as mentioned above, it has the decided advantage of allowing the body to utilize its own resources without the introduction of a foreign substance.

The mechanism of systolic pressure seems somewhat easier to understand than diastolic pressure, because it responds more readily to treatment measures. The mechanism of diastolic pressure is still enigmatic, and changes are slower and high pressures more persistent. I have been using cranial technics designed to free restricted motion at the occipitomastoid sutures during the past 15 years and have found that diastolic pressures have been controlled much more effectively than previously. However, this also is an empirical observation.

Case reports

A group of cases has been selected for individual discussion here, with an aim of illustrating some typical situations where manipulative management can be helpful. Only the manipulative phases of each case are reported; my practice is strictly limited to this specialty.

Case 2 typifies the patient in whom hypertension was not the presenting complaint. In this case, routine evaluation of the blood pressure led to discovery of hypertension. Correction of spinal lesions, for the presenting complaint, also alleviated the hypertension.

Case 5 shows the long-range management of hypertension with manipulative treatment, and also indicates what sometimes can be done with this method when all else has failed.

Case 1 • A 55-year-old patient with severe chronic nephritis, in whom a myocardial disorder was rapidly developing, showed definitely favorable reaction to manipulative treatment. Blood pressure in a sitting position was 190/130 mm. Hg; in a reclining position it was 235/140. Treatment was given as has been described, very gently, to the occipital cranial area; immediately the pressure dropped to 180/130 reclining and remained the same in a sitting position. The following day, before treatment the pressure was 180/100 sitting and 200/120 reclining. The same type of treatment was given, and the pressure dropped to 160/105 reclining. The patient died the following day of an acute myocardial involvement.

Case 2 • A patient with essential hypertension, still active in the plumbing business at age 79, had a history of intractable hypertension for several years. On a number of occasions he had "blacked out" and had been carried home unconscious, only to rally and be back at work the following day. On first examination, the blood pressure was 245/130 mm. Hg in a sitting position. After the first treatment, the systolic pressure dropped 70 points to 175 mm. Hg, and the diastolic pressure dropped 20 points to 110 mm. Hg. Before treatment on the third day, the pressure was 190/110; after treatment it was 160/100. On the eighth day, before treatment the pressure was 172/98. On the fourteenth day, before treatment the pressure was 170/98, and after treatment it was 140/95. On the thirty-second day, before treatment it was 170/110; on the forty-fourth day, before treatment is was 155/95. This man lived 2 years and died at age 81 of myocardial involvement. During that time 55 blood pressure readings were taken, and the average was 166/108 mm. Hg.

Case 3 • A man with hypertension, which later proved to be directly related to spinal lesions, was first seen 5 years ago at age 79. The chief complaint was lameness of the lower back and stiffness across the shoulders; he was in apparent good health otherwise except for an aortic murmur of long standing. Spinal lesions were as follows: primary lesions at the tenth, eleventh, and twelfth thoracic vertebrae, with a secondary pelvic twist involving the fifth lumbar vertebra and the sacrum.

Blood pressure before treatment was 200/120 mm. Hg in a sitting position and 190/110 reclining. The pulse rate was 80 per minute. Immediately after freeing fixation at the four spinal areas mentioned above the pressure was reduced. The following day, before treatment the pressure was 132/80, both sitting and reclining; pulse rate was 94; and the aortic murmur was still present. Four days later and before treatment, the pressure was the same sitting (132/80) and 125/80 reclining. Pulse rate was 80 per minute.

Six months later he came back with a complaint of "lame" shoulder. Before treatment the pressure was 125/80 and the pulse rate 80, both in a sitting position. Unaccountably, the murmur was not heard. One year later and 8 months after a successfully pinned fracture of the right femur, there was the same lesion pattern and complaint of back pains. The blood pressure before treatment and in a sitting position was 142/85, and the pulse rate was 96. The murmur was still absent. Six days later the pulse rate was down to 80 per minute.

One year later there were symptoms referable to the gallbladder; still the blood pressure was only 140/80, and the pulse 96, before treatment and in a sitting position; 4 days later the pulse had

dropped to 72. Six months later there was a complaint of mild spinal tension of a similar type; blood pressure taken in a sitting position, before treatment, was 130/80; pulse rate was 72.

Two years and 8 months later, following an accidental slip from a step, which sprained his ankle, the patient complained of lameness in the right leg, the one previously broken at the hip. Abnormal structural findings included external rotation of the left temporal bone, internal rotation of the right temporal bone, and spinal lesions at the second and third cervical and eleventh and twelfth thoracic vertebrae with the usual pelvic twist. Blood pressure before treatment was 160/105 in a sitting position, and 135/90 in a reclining position. The pulse rate was 72 per minute in both positions. After treatment of the temporal and cervical lesions, the pressure dropped immediately to 125/82 and pulse remained at 72, in both sitting and reclining positions. Four days later the pressure before treatment was 122/80 and pulse 80, both sitting and reclining. It seems evident that the fall had produced the upper cervical and cranial lesions, since their correction was followed by very specific and significant results.

Case 4 • A patient with acute brachial neuritis and chronic herpes zoster around the right eye, of 2 years' duration, had a history of a fall 3 years ago in the washroom of an airplane as a result of unexpected air turbulence. Routine palpation of the radial pulse revealed a marked hypertension. Blood pressure was taken and recorded at 180/80 mm. Hg in a sitting position; 140/80 mm. Hg reclining with the head on two pillows; and 180/80 mm. Hg reclining with the head on the table.

Spinal and cranial examination revealed a marked lesion fixation of the right temporal bone in what is known to cranial technicians as external rotation. The mastoid process was rotated and fixed in forward, downward, and lateral position. An extremely tender area was found at the posterior inferior angle of the right parietal bone where it articulates at the angle between the right temporal and occipital bones. The only other lesions recorded were at the seventh, eighth, and ninth thoracic vertebrae. There was a moderate kyphosis at the first through fourth thoracic vertebrae.

Since the herpes zoster followed the fall by about 1 year and the brachial neuritis followed the accident by about 3 years, it was postulated that the right temporal lesion had an influence on the herpes zoster and, by reflex, an influence in the upper thoracic kyphosis, and later still the brachial neuritis, which was the presenting symptom.

Specific treatment of the right temporal lesion had an immediate and lasting effect in reduction of blood pressure. On the forty-seventh day, before treatment the blood pressure was higher in the reclining position. There was evidence of increased tenderness in the lower thoracic area only. Treatment given in this area was both corrective and relaxing, and there was a marked drop in pressure in the reclining position and a slight rise in pressure in the sitting position, though it was still 10 points higher than in the reclining position. No cranial treatment was given at that time.

On the fifty-fourth day pretreatment pressure in the reclining position was 180/80. Treatment was given in the dorsal area, and there was an immediate drop in pressure to 150/80. Cranial treatment was then given, and the pressure dropped again, to 130/80; it remained the same in both sitting and reclining positions. On the sixty-first day the pressure was 132/80, both sitting and reclining.

It seems evident that this patient developed hypertension from both the cranial and thoracic lesions, but the presenting symptoms did not refer to either.

Case 5 • A patient with hypertension superimposed on cardiovascular-renal disease was referred for osteopathic care by a doctor of medicine who gave a very grave prognosis. The first examination was on May 10, 1947, when the patient was 44 years of age. Her blood pressure at that time was 185/125 mm. Hg in a reclining position and 220/140 mm. Hg in a sitting position. There was a mitral murmur transmitted to the left scapula. The pulse rate was 108 per minute. There was muscular weakness in the left arm and leg.

Her past history included a fall on ice 3 months previously. There had been a severe fall on the head at age 5, with symptoms of concussion; she had fallen again at age 11 when a chair was pulled out from under her, and there had been severe injury to the lower dorsal area at that time.

Osteopathic lesions noted at first examination were as follows: Internal rotation and palpation of the right temporal bone caused severe pain; there were also lesions at the axis and first two cervical vertebrae, and at the tenth, eleventh, and twelfth thoracic vertebrae.

Response to treatment was slow and often discouraging to both doctor and patient but in this case persistent treatment proved worth while. During the first 10 years the systolic pressure before treatment was found to be at 200 mm. Hg or above eighteen times. Each time it responded to one treatment. The average pressure before treatment during the past year, the thirteenth year of treatment, was 154/87 mm. Hg. The average reduction achieved through all the years of treatment was 41 mm. Hg systolic and 11 mm. Hg diastolic; obviously some treatments have produced much more dramatic results than this, while others have had less effect. The patient's general health has greatly improved, and the cardiac and renal symptoms have long since been relieved. She is checked routinely every 4 weeks; one treatment a month seems to keep her in relatively good health.

Summary

There is empirical evidence that patients with hypertension can be greatly benefited by osteopathic

manipulative treatment. Almost any method that relaxes tense tissues is helpful, but special emphasis is placed on cranial technics. The one which seems to have the broadest application to both systolic and diastolic pressures, and is most dependable for immediate relief without any unfavorable reaction, consists of a gentle rocking of the temporal bones and gentle rotation of the upper cervical vertebrae with constant mild traction.

A selected series of 100 cases in which relief from hypertension was most dramatic has been briefly discussed. In general, relief was more marked in systolic than in diastolic pressures. Five cases have been discussed somewhat in detail, illustrating typical experiences in manipulative management of hypertension.

It is my belief that there is a bonus of added years of normal activity and good health for many of our patients if osteopathic manipulative treatment is employed in hypertensive disease. An important part of this is the ability of the physician to develop skill in palpatory diagnosis and the more intricate manipulative technics.

1. Butler, G. R.: Diagnostics of internal medicine. D. Appleton & Co., New York, 1904, p. 367.
2. Northup, T. L.: Temporal lesion, in Academy of Applied Osteopathy Year Book, 1943-44; manipulative therapy demonstrations. Edwards Brothers, Ann Arbor, Michigan, 1944, pp. 25-28.
3. Bandeen, S. G.: Pancreatic stimulation and blood chemical changes, in Academy of Applied Osteopathy Year Book, 1948; manipulative therapy demonstrations. Edwards Brothers, Ann Arbor, Michigan, 1948, pp. 78-92.
4. Northup, T. L.: Manipulative therapy in osteopathic management of hypertension, in Academy of Applied Osteopathy Year Book, 1955; selected osteopathic papers. Academy of Applied Osteopathy, affiliated with the American Osteopathic Association, Chicago, 1955.
5. Page, I. H.: Concepts of etiology of arterial hypertension. M. Clin. North America 45:235-238, March 1961.

Applied anatomy of paranasal sinuses

BLANCHE C. ALLEN, B.A., B.Sc. (Ed.), D.O., Ardmore, Pennsylvania*

It is the purpose of this paper to review the anatomy of the paranasal sinuses, in order to emphasize facts of anatomy which have been little noticed, with an eye toward providing more effective treatment for sinusitis. Data to be considered include the embryology of each sinus and the osseous construction, including the articulations of the bones and parts of bones which enter into the formation of each, to allow motion between them.

The relation of other structures to each sinus is important in diagnosis and treatment, as are the blood and nerve supplies to bone and the mucosa and lymphatic drainage from these areas.

Treatment based on these anatomic facts will be discussed, keeping in mind the unitary concept of man.

Submitted to the faculty of the Philadelphia College of Osteopathy in partial fulfillment of the requirements for the degree of Master of Science (Osteopathic Medicine), Philadelphia, Pennsylvania, May 1960.

*Address, 112 Schoolhouse Lane.

Anatomy of the paranasal sinuses

The paranasal air sinuses are named according to the bone in which the largest part of each sinus is found: the frontal, sphenoid, ethmoid, and maxillary sinuses. Except for the sphenoid, these sinuses appear early in the fifth month of fetal life. The sphenoid develops after birth, at 2 or 3 years of age.

They are formed by the invasion of bone with an outpocketing of nasal mucosa, which activates the excavation of bone. These excavations remain small until after birth. The epithelium which produces the destruction of bone grows into the excavation and becomes the lining of the sinus.

The functions of the paranasal sinuses are to warm and moisten the air before it enters the lungs, to lessen the weight of the skull, and to give resonance to the voice.

Maxillary sinus • The primitive maxillary sinus begins as an outpocketing of the lateral wall of the infundibulum of the ethmoid and develops into an oblong mass extending into the nasal capsule. The ostium is located at the point of the lateral evagination. The expansion increases more rapidly

in an anteroposterior direction, while the smaller superoinferior diameter increases with the development and growth of the teeth.

The form of the sinus changes from oblong in early childhood to pyramid-shaped in adulthood. At the end of the first year the sinus develops in close relation to the infraorbital nerve. At the end of the second year the lateral part of the sinus lies beneath the infraorbital nerve. The ridge in the roof of the sinus results from the canal developed for this nerve.

The ostium of the maxillary sinus, variable in shape from a slit to an oblong or ovoid opening, is located in the medial wall near its posterior extent. It communicates with the middle nasal meatus through the infundibulum and hiatus semilunaris, a distance of 4 to 12 mm. The accessory ostia, which may be present, have no embryologic significance. The presence of a mucous cyst in the mucosa of the medial wall may have weakened it during development.

Parts of the cranial bones which close the ostia are the superior uncinate process of the ethmoid which articulates below with the ethmoidal process of the inferior nasal concha. The vertical portion of the palatine partially closes it behind, and a small portion of the lacrimal bone covers it in front.

To understand the location of the maxillary ostium in the middle meatus of the nose, it is necessary to review adjacent structures in this region. The bulla ethmoidalis bulges from the lateral wall into the upper middle meatus under the middle concha. It varies in size, is covered with mucous membrane, and includes the middle ethmoidal air cells. The long uncinate process of the ethmoid curves downward and backward, at first in front of the bulla and then below it. The curved interval between the bulla and the uncinate process is the hiatus semilunaris. The mucous membrane dips into this hiatus as it crosses between the bulla and the uncinate process to form a "gutter." It may develop as a groove on the uncinate process. Leading into the hiatus downward through the anterior part of the ethmoidal labyrinth is the unfundibulum or funnel from the frontal sinus.

The maxillary sinus is bounded by four walls, which are the nasal or medial, orbital or superior, infratemporal or palatine, and anterior or maxillary. The nasal or medial wall presents the ostium. The posterior wall transmits the posterior superior alveolar nerves and vessels to the teeth. In the orbital wall the infraorbital canal projects into the cavity as a ridge. The anterior wall corresponds to the anterior maxillary surface. The anterior superior and middle alveolar nerves pass down in relation to the anterior wall. Projecting into the floor are the conical eminences which correspond to the roots of the teeth. (The canine teeth occasionally perforate the floor.) The floor, formed by the alveolar process of the maxilla, is on a level with the floor of the nose or below it. Between the mucosa and the roots of the teeth is a very thin layer of bone.

The maxilla is a very vascular bone, receiving arterial supply from the infraorbital, alveolar, descending palatine, sphenopalatine, ethmoidal, frontal, nasal, and external maxillary arteries.

Frontal sinus • These sinuses develop from the recess conchalis, which is located beneath the anterosuperior attachment of the middle concha medial to the uncinate process. They may grow from the recess of the infundibulum lateral to the uncinate process, appearing about the sixth fetal month, although sometimes they are not seen until the first year. The cells excavate the inferior portion of the frontal bone, at first surrounded by thin lamina of compact bone, and enter the vertical portion of the frontal as the cancellous tissue is absorbed. The sinuses of the two sides are not symmetrical because of unequal reabsorption of the diploë. Irregularity of growth may produce deviation of the frontal septum.

The frontal sinuses are thus located at the junction of squama and orbital portions of the frontal bone, between inner and outer tables of bone. They may extend upward and sideward into the squama, back through the roofs of the orbits or into both squama and orbits. They lie superior to the orbit, nose, and anterior ethmoidal air cells, and anterior to the cranial cavity.

The walls of the frontal sinus are anterior, posterior, and medial, and inferior floor. The anterior wall is formed by the anterior plate of the vertical portion of the frontal bone. The size of the superciliary arches bears no relationship to the size of the sinus behind. The posterior wall, composed mostly of compact bone, is formed by the posterior plate of the vertical portion, occasionally by part of the horizontal plate. The medial wall is the septum, which may deviate to one side. The floor, quite uneven, is formed by the orbital roof laterally and anterior ethmoidal cells medially. In the posteromedial aspect of the floor, usually in the most dependent position, the ostium frontalis opens into the ductus nasofrontalis or middle nasal meatus. It may communicate with the infundibulum.

Ethmoidal sinus • These sinuses are composed of many thin-walled cavities in the lateral masses or labyrinths of the ethmoid bone. The cells are completed by the frontal bone, maxillae, lacrimals, sphenoid, and palatine bones.

These sinuses develop as invaginations of nasal mucosa into the lateral masses of the ethmoid from primitive grooves on the lateral walls. These invaginations appear in the fourth fetal month and resemble cylindrical extensions of mucosa with epithelial surfaces in contact. By the sixth month distinct cell formation is seen. The anterior cells develop earlier and much more rapidly than the posterior cells.

The number of cells in each labyrinth varies from three to eighteen; the fewer the total number, the larger the individual cell. They are arranged in anterior, middle, and posterior groups but may ex-

tend into neighboring bones such as frontal, ethmomaxillary, ethmosphenoidal, and ethmopalatine. The anterior group is composed of two to eight cells which open into the middle meatus through the frontal recess or infundibular portion of the middle meatus. The middle group of cells is sometimes known as bulla; anterior ethmoidal cells open upon the bulla or above it. The posterior group opens into the superior meatus above the middle nasal concha. Occasionally one of the group may open into the sphenoid sinus.

The labyrinth or lateral masses of the ethmoid lie between two vertical plates of bone, the lateral plate or lamina papyracea which forms the medial wall of the orbit, and the medial plate which forms part of the lateral wall of the nasal cavity. The upper surface of the labyrinth presents half cells which are completed by the frontal bone. Two grooves cross this surface transversely, which form the anterior and posterior ethmoidal canals when completed by the frontal bone. The partial cells of the posterior surface of the labyrinth are closed by articulation with the sphenoidal conchae and the orbital process of the palatine bone. The laminae papyraceae articulate above with the orbital plate of the frontal, below with the maxillae and the orbital processes of the palatine bones, in front with the lacrimal bones, and behind with the sphenoid. The cells anterior to this lamina are completed by the lacrimal and the frontal process of the maxillae.

Sphenoid sinus • This sinus does not develop from a furrow on the lateral nasal wall, as do the frontal, maxillary, and ethmoid sinuses, but as an invagination from the posterosuperior portion of the sphenoethmoidalic recess. This invagination of the mucosa can be seen in the 65-day-old fetus. This site persists as an ostium.

The primitive sphenoid sinus early appears posterior to the nasal capsule and anterolateral to the body of the sphenoid. An ossification center develops in the anteroinferior wall of the primitive sinus. By the end of the second or third year this ossification center joins the sphenoid bone. By the fifteenth year a thin plate of bone separates the sinus and the sella turcica. The sphenoid sinus is the cavity of the body of the sphenoid just below the sella turcica in the center of the base of the skull.

In order that the autonomic nerve supply to the sinuses may be adequate, the upper thoracic segments of the spine must be maintained in normal motion. The sympathetic division of the autonomic system carries vasomotor fibers

The ostium of the sphenoid sinus opens into the sphenoethmoid recess which is located above and behind the posterior part of the superior nasal concha and in front of the body of the sphenoid. The aperture is located in the anterior wall of the sinus about 3 to 10 mm. above the floor and is partly closed by synosteosis of the sphenoidal conchae with the front of the body of the sphenoid.

The size and shape of each side of this sinus vary, rarely being symmetrical. They may be very large, or quite small, or multilocular, or occasionally divided by a septum.

Because of the position of the sinus, extensions from it can affect adversely nearby important structures. Extension can be made into the lesser wings of the sphenoid to encroach on the optic foramen and its contents, the optic nerve, and ophthalmic artery. Extension laterally into the great wing may continue into the superior orbital fissure and/or the foramen ovale to threaten structures in these areas. The vidian nerve is in close relation to the floor of the sinus. The hypophysis is just above the sinal roof. Extension into the pterygoid process of the sphenoid may include the sphenopalatine ganglion in the pterygopalatine fossa. The cavernous sinus with the four cranial nerves and the internal carotid artery is in close relation to its lateral walls. Posteriorly the sinus may extend into the basilar portion of the occipital bone and then to the basilar artery and brain stem. The body of the sphenoid is associated with several openings into the skull, such as the superior orbital fissure, foramina rotundum and ovale, and lacunae.

The chief blood supply to the sphenoid and ethmoidal air cells comes from branches of the ophthalmic artery of the internal carotid. The anterior ethmoidal branch supplies the frontal, anterior, and middle ethmoidal cells. The posterior ethmoidal branch supplies the posterior ethmoidal cells. The sphenopalatine branches of the internal maxillary artery of the external carotid supply the frontal, maxillary, ethmoidal, and sphenoidal sinuses.

The nerve supply is from the sphenopalatine ganglion, as postganglionic from the superior cervical sympathetic ganglion. The facial nerve sends secretory fibers to the glands of the mucous membrane, as postganglionic from the sphenopalatine ganglion.

The sphenoidal conchae are curved thin plates of bone which articulate with the ethmoid and the palatine. They form the anterior surface of the body of the sphenoid and the anterior part of the inferior surface except the crest and the rostrum.

Anatomy of related structures

Since this paper deals with the paranasal sinuses, their anatomy and physiology, it must be noted

that any lesion between the cranial bones is of equal importance to an osteopathic lesion in the spine, knee, ligament, muscles, and circulatory system.

The cranial dura and its reduplications serve as ligaments for the cranial bones, being firmly attached to all sutures, blending with the periosteum of all foramina, continuous as spinal dura. The spinal dura also blends with the periosteum of intervertebral canals and the upper two cervical vertebrae through the anterior longitudinal ligament of the spine. Distally the spinal dura is attached by tough areolar tissue to the second sacral segment. The reduplication of the inner layer of dura mater, the falx cerebri, the falx cerebelli, tentorium cerebelli, and the diaphragma sella, are firmly attached to the crista galli of the ethmoid, superior angle of the petrous portion of the temporal bone, lips or grooves for venous sinuses, the clinoid processes, and foramen magnum. The venous sinuses overlie sutures, either in part or as a whole. For example, the inferior petrosal sinus overlies the petrobasilar articulation, and the sigmoid part of the transverse sinus overlies the occipitomastoid articulation.

As elsewhere in the body, a restriction in the normal range of motion of any part can start a sequence of pathologic changes reaching far beyond the primary lesion. To render adequate treatment for sinusitis, cranial mobility must be restored.

Vasomotor and secretory fibers to the mucosa of the paranasal sinuses are supplied by the autonomic nervous system. The preganglionic fibers of the sympathetic portion of the autonomic system arise from the first four or five thoracic levels of the spinal cord and terminate in one of the three pairs of cervical sympathetic ganglia. Postganglionic fibers form plexuses around vessels—external and internal carotid arteries to the nasal sinuses. Some fibers from the internal carotid plexus join the nasociliary nerve of the ophthalmic division of the trigeminal nerve and pass through the sphenopalatine ganglion to the mucosa. The facial nerves send preganglionic secretory fibers to the sphenopalatine ganglion—postganglionic to the sinal mucosa.

Since all parts of the body were designed to be movable, so are all parts of the skull. The body cannot be separated from the head. If it was intended that the skull be a fixed box, why is it not formed by one or two large bones instead of twenty-two bones? Each bone, no matter how small, has articulations formed by changes of bevelling at a pivotal point.

Let us examine these cranial articulations. Dorland's *Medical Dictionary*[1] defines "articulation" as "a joint; the place of union or junction between two or more bones of the skeleton"; and "joint" as, "an articulation; the place of union between two bones; more especially one which admits more or less motion in one or both bones."

Structures related to the sphenoid • The sphenoid directs the pattern of the bones of the face, all of which move about the ethmoid. These facts must be constantly kept in mind in connection with facial structure, in management of such conditions as acute or chronic sinusitis.

The anterior surface of the body of the sphenoid presents in the midline the sphenoidal crest which articulates with the perpendicular plate of the ethmoid. The lateral margin of the anterior surface is serrated for articulation with the lamina papyracea of the ethmoid. The inferior margin articulates with the orbital process of the palatine bone. Its superior margin articulates with the orbital plate of the frontal bone. The inferior surface of the body of the sphenoid is divided by a midline triangular-shaped spine, the rostrum of the sphenoid, which is continuous anteriorly with the crest. The rostrum articulates with the vomer by its reception into the fissure between the alae of the vomer.

The inferior portion of the squama of the frontal bone is a bevelled articulation with the great wing of the sphenoid. It is an L-shaped articulation, concave on the great wing and convex on the frontal to allow for rolling-glide motion.

The sphenoethmoid articulation constitutes the second curve in the cranial axis, that portion of the skull between the basion and nasion. Posteriorly the center V-shaped notch of the cribriform plate articulates with the ethmoid spine of the sphenoid.

The pyramidal process of the palatine bone articulates with the pterygoid process of the sphenoid, which assists in directing the movements of the palatine. The posterior aspect of the pyramidal process presents three grooves, the middle one being smooth to form the pterygoid fossa. On either side of the fossa are two roughened diverging grooves for articulation with the convex lower portion of the two pterygoid plates. The lateral plate is longer than the medial, which aids in the lateral arc movement of the palatine bone. The base of this pyramidal process is close to the union of the vertical and horizontal parts of the palatine bone. It presents foramina for the lesser palatine nerves. Laterally the pyramidal process articulates with the tuberosity of the maxilla. The palatine moves about the palatomaxillary pivot

Mobility of cranial bones and dura, and spinal segments and dura, is most important to provide good blood supply to and lymphatic and venous drainage from the paranasal sinuses, in order to relieve congestion and combat infection

which is located at the lateral end of the posterior border of the palatine process of the maxilla and the horizontal part of the palatine. Posterior to this pivotal point and at right angles to the horizontal part, the articulation between the palatine and the sphenoidal pterygoid processes is in the vertical plane.

The posterior articular process of the orbital process of the ethmoid articulates with the concha and the body of the sphenoid. The sphenoidal process of the ethmoid articulates with the sphenoid, the root of the pterygoid process, and the undersurface of the concha. The anterior border of the sphenoidal process forms the posterior boundary of the sphenopalatine foramen. The posterior border is serrated at the expense of the outer table for articulation with the medial pterygoid plate.

One temporosphenoidal articulation lies between the great wing of the sphenoid and the squama of the temporal bone. It is formed by two limbs, one on either side of the pivotal point of change of bevelling, which is at the level of the infratemporal crest on both bones. The superior or anterior limb is a lateral suture extending from the pterion to the pivotal point. The great wing is bevelled at the expense of its external table to articulate with the internal bevelling of the temporal squama. The inferior or posterior limb is an inferior suture and is directed medially. The great wing is serrated at the expense of its inner table of bone for articulation with the external bevelling of the temporal squama. This squamosphenoid suture is like that of the occipitomastoid.

Another articulation between the sphenoid and temporal bone is between the posterior border of the great wing and the anterior border of the petrous portion of the temporal bone. The lateral half of the posterior border of the great wing articulates by means of a synchondrosis with the petrous portion. On the basilar surface of this articulation is a furrow between the two bones, which lodges the cartilaginous portion of the auditory table.

The sphenobasilar articulation is formed by the anterior surface of the basilar portion of the occipital bone and posterior surface of the body of the sphenoid. A plate of cartilage separates them until about the twenty-fifth year, when it ossifies. Since both bones entering into the articulation are composed of spongy or cancellous bone, they are flexible throughout life.

Structures related to the frontal bone • A consideration of the articulations of the frontal bone is very important in treating sinusitis by cranial manipulation. The quadrilateral-shaped ethmoid notch of the orbital plate of the frontal is filled in by the cribriform plate of the ethmoid, completing the ethmoidal half cells. On either side of the frontal spine, anterior to the cribriform plate, are openings of frontal air cells. A narrow fixed ethmoid notch can crowd the ethmoid cells.

The nasal notch of the frontal articulates with a nasal bone, laterally with the frontal process of the maxillae, and the lacrimal bones. The posterior border of the orbital plate is thin and serrated to articulate with the lesser wings of the sphenoid.

Structures related to the maxilla • For proper function of the maxillary sinus the maxillae must not be fixed in any part of their articulations. Each articulates with two cranial bones, the frontal and ethmoid, and seven facial bones, the nasal, zygomatic, lacrimal, inferior nasal concha, the palatine, vomer, and its opposite fellow. The zygomatic process presents a rough triangular convex surface to articulate with the concave articular surface of the zygomatic bone. This type of articulation allows a rolling type of motion. The medial border of its palatine process is much thicker posteriorly and raised into a crest, between the lip of which fits the inferior border of the vomer. It has been shown above that between the alae of the vomer fits the rostrum of the sphenoid. The posterior border of the palatine process of the maxilla is bevelled at the expense of its superior surface to articulate with the inferior bevelling on the anterior border of the horizontal part of the palatine bone.

The anterior border of the frontal process of the maxilla is bevelled at the expense of its lateral surface above and medial surface below, to articulate with the corresponding bevelling on the nasal bones which aid in the formation of the roof of the nasal chambers. Gray's *Anatomy*[2] describes the lateral border of the nasal bones as "serrated and bevelled at the expense of the inner surface above and outer surface below for articulation with the frontal process of the maxilla."

Structures related to the ethmoid • The cribriform plate of the ethmoid roofs the ethmoidal air cells, transmits olfactory cranial nerves, and supports the olfactory bulb. Its crista galli, which is a thick smooth upward projection, articulates with the frontal bone by means of its short and thick anterior border. Its alae are received into the frontal bone on either side. On each side of the crista galli is a slip which receives the attachment of the cranial dura mater. Just lateral to this fissure is a slip for passage of the nasociliary nerve of the ophthalmic division of the trigeminal cranial nerve. The falx cerebri has firm attachment to the posterior border of the crista galli. Abnormal tension of dura due to cranial lesions can affect adversely these structures in close relationship.

The ethmoidal perpendicular plate projects downward from the middle of the cribriform plate. Its anterior border articulates with the spine of the frontal bone and the crest of the nasal bones. The upper posterior border articulates with the crest of the sphenoid and the lower half with the vomer.

Related structures in the spine and base of skull • Not only can a lacking point in any or a part of the above described articulation disturb the normal function of the paranasal sinuses, but also any lesion

of the spine and the base bones of the skull. The base bones include occipital, temporal, sphenoid, and ethmoid. Three key articulations are present between the occipital and temporal bones. The occipitomastoid articulation was described with the squamosal-sphenoid. It has the same bevelling. The pivotal point of change is at the level of the junction of the squamal and condylar parts.

The petrobasilar articulation is composed of a sharp concave ridge on the upper portion of the lateral aspect of the basilar part of the occipital bone, separated by a disk of cartilage from the convex groove on the medial portion of the posterior border of the petrous portion. This disk usually persists throughout life. The second articulation between the two bones is formed by a convex, in all directions, facet on the jugular process of the occipital bone, to articulate with the concave facet on the inferior surface of the petrous portion. The facet on the occipital bone is directed laterally, superiorly, and anteriorly, allowing for the balancing mechanism of the temporal bone on it.

The importance of the sphenopalatine ganglion in supplying fibers of the autonomic nervous system to mucosa and blood vessels has been described. Any cranial lesion which will change the size of the ptergopalatine fossa can alter the normal function of these ganglia. Each lies in the pterygopalatine fossa. This is a triangular space below the apex of the orbit, bounded above by the undersurface of the body of the sphenoid and orbital process of the palatine bone, in front by the infratemporal surface of the maxilla, behind by the base of the pterygoid process and lower part of the anterior surface of the great wing, and medially by the vertical process of the palatine with its orbital and sphenoidal processes.

The pterygopalatine fossa communicates with the orbit by way of the inferior orbital fissure, with the nasal cavity by the sphenopalatine foramen, and the infratemporal fossa through the pterygomaxillary fissure. Three foramina open into the fossa through the posterior wall: the foramina rotundum, pterygoid canal, and pharyngeal canal. Two foramina which open in the medial wall are the sphenopalatine foramen and pterygopalatine canal. The contents of each fossa are the maxillary nerve, sphenopalatine ganglion, and terminal branches of the internal maxillary artery.

Notes on treatment

The diagnosis of a cranial lesion is made by the same inspection and tests for motion that are used elsewhere in the body. Treatment is also the same: correction of the lesion. It is well to start with the petrobasilar articulations, and then balance the temporals on the jugular processes. Free both maxillae and zygomatic bones. In mobilizing the palatines, consider the horizontal articulation with the maxillae and then the vertical suture of the pyramidal process between the pterygoid plates. The vomer is used to affect the sphenoidal sinus. Free the nasal bones from the frontal process of the maxilla.

Lymphatic drainage from the sinuses is to the deep cervical chain of nodes, to the thoracic duct on the left, and to the right lymphatic duct.

In order that the autonomic nerve supply to the sinuses may be adequate, the upper thoracic segments of the spine must be maintained in normal motion. The sympathetic division of the autonomic system carries vasomotor fibers.

The cervical fascia and muscles must be considered for good lymphatic drainage as well as proper environment for the cervical sympathetic chain of ganglia and the vagal nerves.

Summary

It has been shown that mobility of cranial bones and dura, and spinal segments and dura, is most important to provide good blood supply to and lymphatic and venous drainage from the paranasal sinuses, in order to relieve congestion and combat infection.

1. Dorland, W. A. N.: American illustrated medical dictionary. Ed. 22. W. B. Saunders Co., Philadelphia, 1951.
2. Gray, H.: Anatomy of human body, edited by C. M. Goss. Ed. 27. Lea & Febiger, Philadelphia, 1959.
Arey, L. B.: Developmental anatomy. Ed. 6. W. B. Saunders Co., Philadelphia, 1954.
Barnhill, J. F.: Surgical anatomy of head and neck. Ed. 2. Williams & Wilkins Co., Baltimore, 1954.
Brash, J. C.: Cunningham's Textbook of anatomy. Ed. 9. Oxford University Press, New York, 1951.
Davis, W. B.: Nasal accessory sinuses. W. B. Saunders Co., Philadelphia, 1914.
Hamilton, W. J., Boyd, J. D., and Mossman, H. W.: Human embryology. Ed. 2. Williams & Wilkins Co., Baltimore, 1952.
Patten, B. M.: Human embryology. Ed. 2. McGraw-Hill Book Co., New York, 1953.
Shaeffer, J. P.: Morris' Human anatomy. Ed. 11. McGraw-Hill Book Co., New York, 1953.

Sudden "death": A mode of reversal

F. GERALD ISETT, D.O., West Van Nuys, California*

A limited number of physicians from five western states were invited to participate in a Closed Chest Cardiac Resuscitation Teaching Institute, held under the sponsorship of the Los Angeles County Heart Association. As a member of this group it was my privilege to learn the methodology of closed chest cardiac resuscitation, and to become convinced of its comparative safety and efficacy.

Such a procedure is not new to mankind; in the Bible there are accounts of reviving the dead. In II Kings 4:32-35, for example, there is this narrative:

> And when Elisha was come into the house, behold, the child was dead, and laid upon his bed. He went in therefore, and shut the door upon them twain, and prayed unto the Lord. And he went up, and lay upon the child, and put his mouth upon his mouth, and his eyes upon his eyes, and his hands upon his hands; and he stretched himself upon the child; and the flesh of the child waxed warm. Then he returned; and walked in the house to and fro; and went up, and stretched himself upon him: and the child sneezed seven times, and the child opened his eyes.

Whether sudden "death" occurs from no apparent reason or happens accidentally, it may be reversible. If steps toward resuscitation are taken immediately, viability of the body can be maintained until its own inert powers are reactivated and vital functions are once more under natural control. This viability is dependent upon support of the oxygenation system: ventilation and circulation.

Ventilation can be maintained by either mouth-to-mouth or mouth-to-nose artificial respiration. Circulation can be provided by cardiac massage. It is the purpose of this paper to discuss the closed-chest method of massage; this treatment, like expired-air methods for artificial respiration, can be applied under any conditions.

*Address, 7611 Balboa Blvd.

Indications and contraindications

Cardiac arrest has been defined[1] as "the sudden and unexpected cessation of cardiac output." It can occur as asystole, ventricular fibrillation, or irreversible shock.

Not all persons undergoing cardiac arrest should be resuscitated. The patient must have some possibility of being restored to a normal state of existence and usefulness. To revive a person to a vegetative state would be most inhumane.

Reversible unexpected death can occur suddenly from myocardial infarction, electrocution, anesthesia, dye injections, anaphylactic reaction to drugs, suffocation, and cardiac catheterization. If cardiac arrest occurs for these reasons, or with no apparent cause, resuscitation should be attempted if oxygenation can be artificially established in 4 or 5 minutes. If more time than this elapses, the effort is futile and not in the best interests of the subject. Neither should resuscitation be attempted if the patient is in the terminal stages of a chronic illness, or if he is dying "the natural death of the aged."

Method of closed-chest massage

A review of the anatomy of the area is helpful to understanding the principle of this method of treatment. The heart, it should be remembered, is a hollow muscular organ of a somewhat conical form, enclosed in pericardium and located between the lungs in the middle mediastinum. It lies obliquely in the chest behind the body of the sternum and adjoining parts of the costal cartilages. It projects farther into the left than into the right half of the thoracic cavity, so that about one third is on the right side while two thirds are on the left.[2]

With the heart thus limited anteriorly by the sternum, posteriorly by the vertebral bodies, and laterally by the pericardium, it can be seen that pressure applied from front to back would have the same effect as compressing a balloon. Blood is forced out of the heart by the pressure, and relaxation allows the heart to refill.

In Figure 1 is shown the position of patient and operator for application of closed-chest cardiac massage. The subject must be on a firm surface. The point of transmission of force is the heel of one hand, applied to the lower sternum.

Pressure is exerted with the heel of one hand at the xiphoid process and the heel of the "helping hand" on the dorsal aspect of the first hand. Downward pressure is exerted in a rhythmic fashion 60 to 80 times each minute, forcing the sternum 4 to 5 cm. toward the vertebral column. Complete expansion of the chest must follow each compression.

Pressure should not be applied by the fingers or palms of the hands overriding the ribs. This could cause rib fracture or, worse, diminish the direction of the force.

Artificial respiration is always given concomitantly with cardiac massage. If there is only one person available, three or four ventilations should be given, followed by 30 seconds of massage, followed again by three or four ventilations. This alternating of ventilation and massage should be continued until help is available so that both can be given simultaneously. If, as is preferable, both can be given, no special coordination is required between the two processes. A natural interchange soon occurs.

Certain signs provide evidence for the effectiveness of massage:

1. Pupils remain constricted or constrict.
2. Spontaneous respirations may occur if they have ceased as a result of cardiac arrest.
3. Pulse and blood pressure may return. Pulsations may be palpated in the femoral or carotid arteries. Blood pressure is measurable at about 100 to 150 mm. Hg systolic and 30 to 40 mm. Hg diastolic.

Supportive drug therapy

In conjuction with closed-chest cardiac massage, certain drugs can be used if necessary.[1]

Epinephrine, 0.33 to 0.5 mg., can be injected directly into the right or left ventricle of the heart by means of a 4-inch #22 needle, after 2 or 3 minutes of massage. A 1:10,000 dilution is recommended. Repeated injections are sometimes of value.

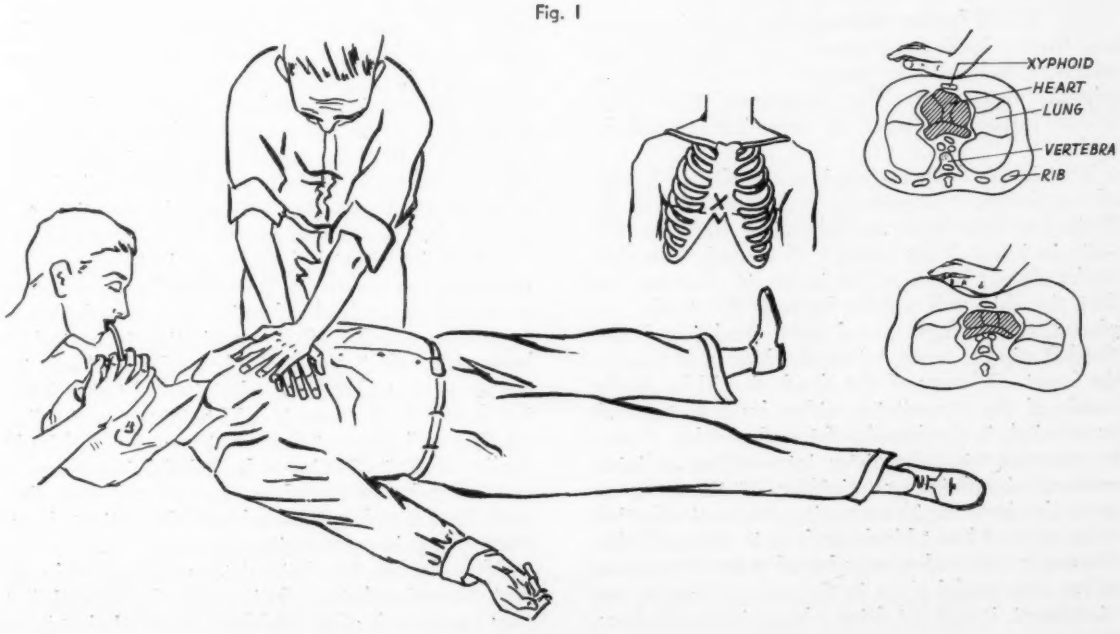
A 10 per cent solution of either calcium chloride or calcium gluconate will strengthen weak cardiac action. If needed, it can be administered either intravenously or directly into the cardiac ventricle, in doses of 5 to 10 cc.

If arrest persists beyond 5 minutes, 44.5 mEq. of sodium bicarbonate should be given intravenously to an adult, or smaller doses to a child. The purpose is to reverse the metabolic acidosis caused by the low blood flow obtained through cardiac massage. Repeat doses should be given every 10 minutes if arrest persists.

Four or five ampules of levarterenol in 500 cc. of isotonic glucose or saline solution should be started intravenously, to enhance a low cardiac output. It should be given at a rate sufficient to sustain adequate blood pressure for renal perfusion, but should be tapered off and discontinued as soon as possible.

Quinidine or procaine amide is valuable for

Fig. 1



When sudden "death" occurs from no apparent reason or happens accidentally, it may be reversible. If steps toward resuscitation are taken immediately, viability of the body can be maintained until its own inert powers are reactivated and vital functions are once more under natural control

depressing an irritable myocardium. Ventricular tachycardia may be converted to sinus rhythm or electrical defibrillation of the ventricle may be permitted if these drugs are given in increments of 240 mg., intravenously or directly into the heart.

Other useful drugs, which may have use in place of or in addition to those just mentioned, include Isuprel, atropine, and Aramine.

Use of mechanical devices

Since the patient is unconscious and therefore unable to respond, the best index of cardiac rhythm is the electrocardiogram. An electrocardiographic tracing should be obtained as soon as possible. This will tell the operator what the cardiac rhythm is and whether or not ventricular defibrillation is necessary. It will further indicate the type of complex and form a basis for evaluating the need for and effects of ancillary drug therapy. It will also indicate whether deterioration has progressed to a point where further attempts at resuscitation will be useless.

Ventricular defibrillation is accomplished by use of an electrical countershock delivered by a defibrillator. This device should deliver 440 volts (220 volts in infants) for every 0.25 second. The electrodes should be large (3½ inches in diameter) so that the skin will not be burned. Electrodes are placed at the suprasternal notch and just below the left nipple, representing the base and apex of the heart. Delivery of the shock should be in the hands of the resuscitator, either by a foot switch or a switch in the handle of the electrodes. It may be necessary to administer intracardiac or intravenous epinephrine or quinidine. At times two or more shocks in rapid succession are most effective.

In cases of heart block, such as in Adams-Stokes disease, a pacemaker may be of value. It appears to have no useful place in the resuscitation of cardiac arrest; it will not drive a hypoxic myocardium.

Complications of resuscitation

Complications are far less common with the closed-chest method of massage than with the open-chest method, for obvious reasons. However, the following difficulties have been noted to occur:

1. Fractured ribs, resulting from application of pressure on them rather than on the sternum.
2. Fractured sternum, resulting from too vigorous effort by the operator.
3. Pneumothorax, resulting from intracardiac injection of medications.
4. Subcapsular liver hematoma has occurred, as has a tear of the inferior vena cava at its junction with the right atrium; these are more serious, of course, but uncommon.

Such complications as these are secondary to the saving of a life. However, they can usually be prevented by proper application of the method, or treated if they occur in spite of due care.

Postresuscitation therapy

The best criterion of when to halt resuscitation should be the patient's condition. Progressive electrocardiographic evidence of deterioration should be construed as indicating irreversibility of the arrest. Evidence of severe brain damage is also a reason to stop efforts.

In most cases, return of spontaneous cardiac activity occurs in 5 to 20 minutes; however, it has returned after 75 minutes of massage.

Details of postresuscitation therapy are not within the scope of this paper. However, a few principles will be given.

In cases where arrest was acute and resuscitation was prompt, no single sign or symptom of damage may be manifested and no further treatment might be required. At the other extreme, where hypoxic injury has resulted, a tremendous effort may be required to bring the patient back to normal or near normal.

Damage must be evaluated early and proper steps taken at once. If respiratory function does not return, this must be supplied mechanically, to insure normal tissue oxidation and acid-base balance. A tracheotomy may be necessary if the patient appears to be unconscious or only partially conscious.

The major effects of the hypoxic insult will be manifested as severe swelling of the brain, resulting in secondary cerebral ischemia. Steps must be taken as soon as possible after resuscitation to control or lessen this effect. To diminish cerebral edema, intravenous urea should be administered twice daily; the dosage is 40 grams in a 15 to 20 per cent saline solution or 5 per cent dextrose in water. Total body cooling to 31 to 33 C may be helpful. These measures must be instituted as soon as possible after resuscitation and maintained until the patient shows signs of regaining consciousness.

Often the heart and circulatory system need support. Norepinephrine solutions may be helpful, but may cause such other problems as renal shutdown

and dependence of the heart upon the drug for maintenance of function. Digitalization is often required.

An effort should be made to restrict intravenous fluid intake to basal requirements, since overadministration could worsen the cerebral edema or overtax a marginally functioning circulatory system. Intake and output must be balanced, and electrolytes supplied as needed.

General support of the patient constitutes the balance of therapy. Nursing care must be excellent. The whole procedure of resuscitation and post-resuscitation care requires massive effort on the part of the rescuers; anything less can mean the difference between success and failure.

Summary

Jude[1] has listed the steps involved in external cardiac resuscitation. In substance, they are as follows:

1. The patient must be an adequate candidate for resuscitation.
2. Arrest must be diagnosed quickly. Summon help.
3. Time is critical; observe it. Oxygenation must be re-established in less than 4 minutes.
4. Give three or four rapid mouth-to-mouth artificial respirations. Continue at twelve per minute if possible, if help is available.
5. With patient on a solid surface, apply external cardiac massage at a rate of 60 to 80 times per minute.
6. Observe the effectiveness of massage by pulsations, constriction of pupils, and spontaneous respirations.
7. Repeat three or four rapid mouth-to-mouth artificial respirations each 30 seconds if alone.
8. Observe for return of spontaneous cardiac action every 3 minutes.
9. Inject 3 to 4 cc. of 1:10,000 epinephrine into heart if there is no spontaneous activity at 3 minutes.
10. Transfer the patient to a hospital (if not already there), continuing artificial respiration and massage *en route*.
11. Check by electrocardiogram for types of cardiac arrest (asystole or ventricular fibrillation).
12. Apply external defibrillator if indicated by presence of ventricular fibrillation.
13. Give 5 to 10 cc. of 10 per cent calcium chloride, by either intracardiac or intravenous route, if weak cardiac action occurs.
14. Reverse acidosis with 4.5 grams (44.3 mEq.) of sodium bicarbonate intravenously if arrest persists for more than 5 minutes. This may have to be repeated at 10-minute intervals if arrest persists.
15. Give 240 mg. aliquots of quinidine gluconate by intracardiac or intravenous route, if necessary to decrease myocardial irritability or maintain defibrillation.
16. Continue external massage and artificial respiration until there is a spontaneous blood pressure and ventilation adequate to maintain the patient.
17. Perform a saphenous venous cutdown if necessary for infusion of fluids.
18. Give vasopressors (levarterenol, Aramine, Isuprel) continuously to sustain blood pressure, if necessary.
19. Apply postresuscitation artificial respiration and hypothermia as indicated.
20. Alleviate cause of cardiac arrest by diagnosing and treating the inciting disease process.
21. With return of "life," the resuscitation procedures may stop at any point.

There are two essential advantages in using closed-chest resuscitation rather than the open-chest method. First, it may be carried out by anyone thoroughly familiar with the technic. Second, it may be done in any place, in a hospital or out, without the necessity of dramatically incising the chest in order to massage the heart.

1. Jude, J. R.: Closed chest cardiac resuscitation; methods—indications—limitations. Syllabus distributed by American Heart Association as service to physicians.

2. Goss, C. M., ed.: Gray's Anatomy of human body. Ed. 27. Lea & Febiger, Philadelphia, 1959.

Kouwenhoven, W. B., Jude, J. R., and Knickerbocker, G. G.: Closed-chest cardiac massage. J. Am. M. A. 173:1064-1067, July 9, 1960.

Correction

The article, "Juvenile Rheumatoid Arthritis (Still's Disease)," by Louis F. Amalfitano, D.O., published in the July JOURNAL, should have carried the following acknowledgment: Appreciation is expressed to Dr. Milton Kellman, Detroit, for the privilege of reporting this case in which the treatment was rendered under the care of Dr. Kellman. The method of utilizing an enzyme-steroid combination has been the subject of a long-term research project by Dr. Kellman, who has in preparation a report of its use in an extensive series of cases. We regret the omission.

A physical finding related to psychiatric disorders

JOHN M. WOODS, D.O., and RACHEL H. WOODS, D.O., Kansas City, Missouri*

It is generally conceded that there is a need for physical as well as psychologic criteria to aid in the diagnosis of psychiatric disorders. In repeated observations on a series of psychiatric patients at the Still-Hildreth Osteopathic Hospital we consistently noted one such differential physical finding, a palpable phenomenon which we have designated "cranial rhythmic impulse." This rather nonspecific term is comparable to the term "apical impulse," used in cardiology, and does not attempt to describe the mechanism responsible for the impulse. In 2,288 examinations involving 102 patients the average number of cranial impulses per minute was 6.7, while in a control group of 62 normal subjects, the average was 12.47 per minute. These rates were verified frequently, by more than one observer. As far as could be determined, the administration of tranquilizing drugs did not influence the rate.

Method

Cranial rhythmic impulses are detected by very light, passive (kinesthetic), bimanual palpation of the cranium. We usually use a palmar contact over the lateral surfaces of the parietal bones and the squamous portion of the temporal bones. The main contact is between the hypothenar and palmar areas and the areas immediately posterior and caudad to the parietal eminences. The hypothenar area, being used less for touch, seems to be more sensitive to kinesthetic sensation. Finger-tip contact is avoided. The impulses seemingly exert an intermittent pushing or expansile force on the palms, comparable to the intermittent uterine contractions of late pregnancy but very much fainter and of much shorter duration.

Usually these impulses can best be felt with the subject supine on the examining table and the observer seated at the head of the table with his forearms resting on the table. Complete relaxation of the observer's body, especially the arms, is important in the passive kinesthetic recognition of the impulses. If the volar surfaces of the wrists are within 2 or 3 cm. of one another just above the vertex of the skull there is less tendency toward digital palpatory contacts with the head. The maintenance of the very gentle passive contact is often difficult for those accustomed to more active tactile palpation.

The usual rate for normal adults is from 10 to 14 impulses per minute. In children the rate seems to be slightly higher than in adults, although we do not have an extensive series of observations in this age group. In some cases the cranial impulses and respiration are synchronous, but the impulses continue independently when the subject holds his breath. It is advisable for the neophyte observer to suspend his own breathing occasionally in order to eliminate possible confusion as to the source of the impulses.

Observations

The average rates for patients in the three major groups of psychiatric disorders are shown in Table I.

Various factors were found to influence the impulse rate. In all individuals tested, inhalation of oxygen increased the rate, while 5 per cent carbon dioxide slowed it down. In many of the less disturbed patients a slight difference in rate resulted

This work was made possible by a grant from the Sutherland Cranial Teaching Foundation.

*Address, 3829 Troost Ave.

TABLE I—AVERAGE RATES OF CRANIAL IMPULSE IN PSYCHIATRIC DISORDERS

No. patients in each study group*	Schizophrenia		Depression		Involution		Miscellaneous	
	No. cases	Impulse rate	No. cases	Impulse rate	No. cases	Impulse rate	No. cases	Impulse rate
52	11	5.8	21	6.42	5	9.2	15	7.5
50	19	6.7	12	6.50	8	6.0	11	7.4

*The control group of 62 nonpsychiatric subjects had an average impulse rate of 12.47 per minute.

as a seeming response to the sex of the observer; the difference remained constant for a given patient. This difference rarely occurred in the more severely disturbed patients or in subjects who were not hospitalized. The recall of a strong emotional reaction, especially fear, often caused a brief cessation of the impulses, usually for 10 to 20 seconds, in both patients and controls. In those previously treated by electric shock, any mention of such treatment produced, in the more rational patients, a very marked cessation of impulses. Later we learned that anyone with good binocular vision will usually experience a similar pause in binocular alternation rate also, if his recall of a fear-inspiring experience is sufficiently vivid.

Loss of sleep during a long period of tension or pain may cause a moderate decrease in the cranial impulse rate; this returns to normal after a night of sound sleep. In the case of two externs who had been on prolonged hospital duty with no sleep the previous night, the rates were respectively 8 and 9 per minute; after one night's sleep the rates were 12 and 13 per minute. Another extern showed a similar variation after an all-night poker game. Laughlin[1] found such a decrease in patients with prolonged loss of sleep due to marked pain. Stanley-Jones[2] reports a schizophrenia-like reaction in soldiers subjected to loss of sleep along with vigorous physical exercise. Fever, on the other hand, usually causes an increase in the cranial impulse rate.

In one of our patients who had suffered a severe cerebrovascular accident, no impulse could be detected on the side of the lesion up to the time of the patient's death 10 days later. In this case, a second observer was not informed of the case history until after the cranial findings were recorded.

The lowest rate observed was 3 impulses per minute, in a tabetic 52-year-old man with acute mania. Two schizophrenic patients, who had undergone frontal lobotomy several years earlier, showed a rate of 4 impulses per minute. This same low rate was also noted in some of the more acutely disturbed patients. In general, the patients with rates consistently below 9 per minute exhibited some psychiatric symptoms.

In most of the patients there was an increase in the cranial impulse rate during periods of clinical improvement and a decrease during regressions. Typical examples of these variations may be seen in Figure 1 on pages 990 and 991.

Discussion

It was interesting to note that in the schizophrenic group the most marked restrictions of sutural motion were usually in the occipitotemporal areas, while in the other two major groups such sutural restrictions were more general. "Restricted sutural motion" is a hypothetical term denoting increased resistance to separating forces applied to each side of a cranial suture. The persistence of the four portions of the occipital bone as separate entities until about age 7, and the persistence of a distinct articular surface between the jugular processes of the occipital and temporal bones until the third decade of life, make this portion of the skull especially vulnerable to trauma during the early age period when schizophrenia usually develops. Lauretta Bender's work[3] on the relationship between perinatal cranial trauma and schizophrenia, and Fish's publications[4] dealing with the detection of vulnerability to schizophrenia in early infancy, possibly tie in with our cranial findings in older patients with this mental disturbance. Their definition of certain physical findings in these infants and children seems to be a valuable addition to the usual psychologic methods of evaluating mental deviations from the normal.

Also pertinent to this study is the relationship of the cranial impulses to the cyclic rate variations of binocular alternations (retinal rivalry or reciprocal retinal replacement[5]). These alternations may be observed by looking through a stereoscope at an equally divided card with diagonal lines, one half of which are drawn at right angles to the other half. A person with normal binocular vision perceives not the lattice effect one would expect, but first one set of lines and then the other with a brief intermediate lattice effect. Blinking of the eyes usually causes an immediate, nonrhythmic shifting of the lines observed. If the observer counts the cranial impulses while the subject counts the cycles of binocular alternation, the rate will be found to be the same if the subject can refrain from blinking. Often it is easier for the subject to count each change of the diagonal fields and divide by two to obtain the number of cycles. By using an old-fashioned stereopticon viewer and a card with the two sets of diagonal lines, anyone with normal binocular vision can easily observe this phenomenon. Some persons will note a brief cessation of the

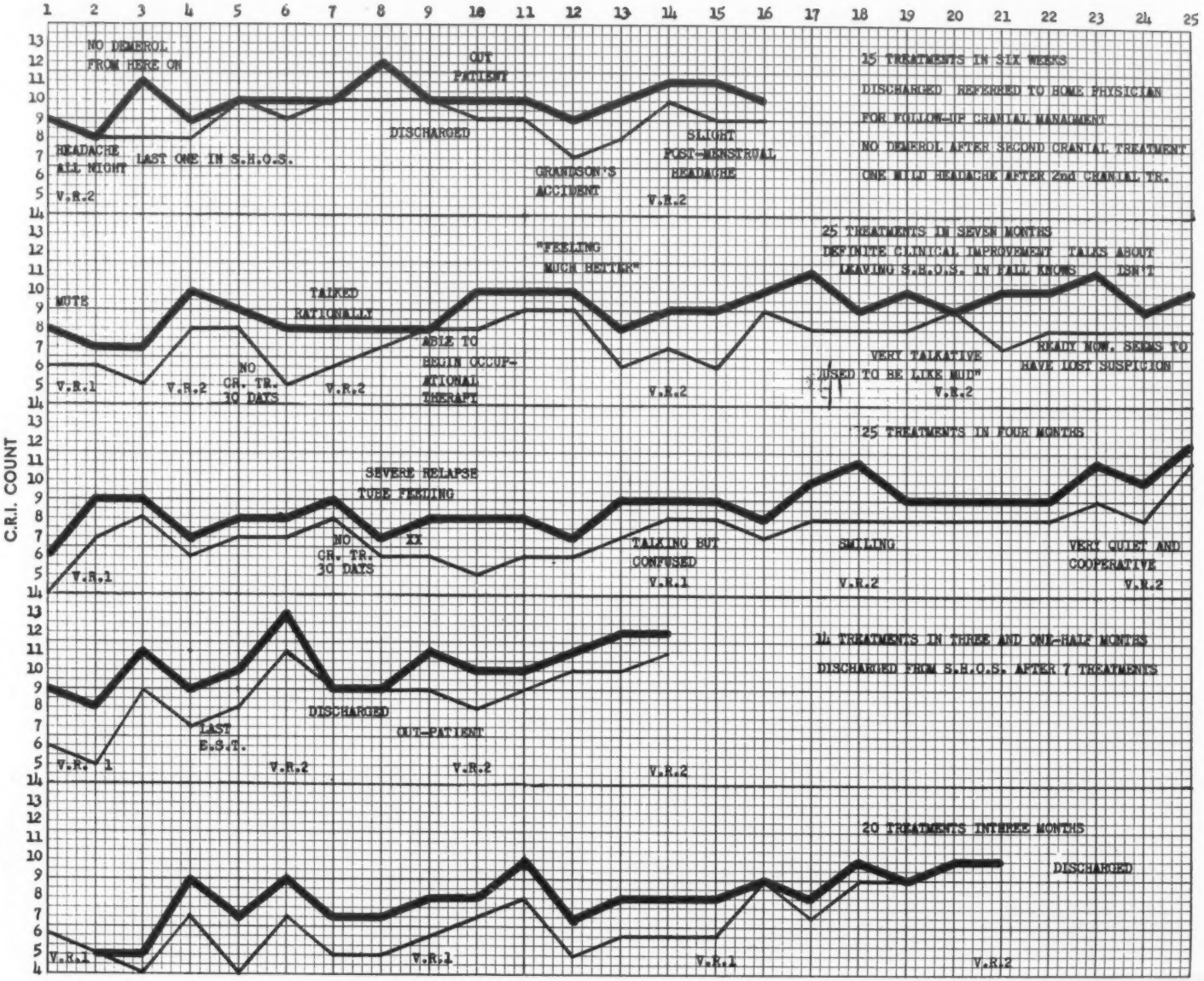
Case 1: Woman, aged 41, with Demerol addiction of 1 year's duration, and severe migraine

Case 2: Man, aged 30, with schizophrenia of a paranoid reaction type; admitted to S.H.O.S. in March 1952

Case 3: Woman, aged 39, with schizophrenia of a catatonic type, of 15 years' duration; admitted to S.H.O.S. in 1947

Case 4: Woman, aged 55, with an involutional psychosis; first attack in 1954, but admitted to S.H.O.S. in March 1958.

Case 5: Woman, aged 71, with intermittent depression of 12 years' duration; third admittance to S.H.O.S. in February 1958



Case 6: Woman, aged 58, with recurrent manic-depressive psychosis; had some cranial treatment before admission

Case 7: Woman, aged 53, with acute schizophrenia with severe catatonia; recurrent after 11 years

Case 8: Woman, aged 70, with agitated depression

Case 9: Man, aged 19, with acute schizophrenia of hebephrenic type. Exacerbation of chronic problem of 5 years' duration

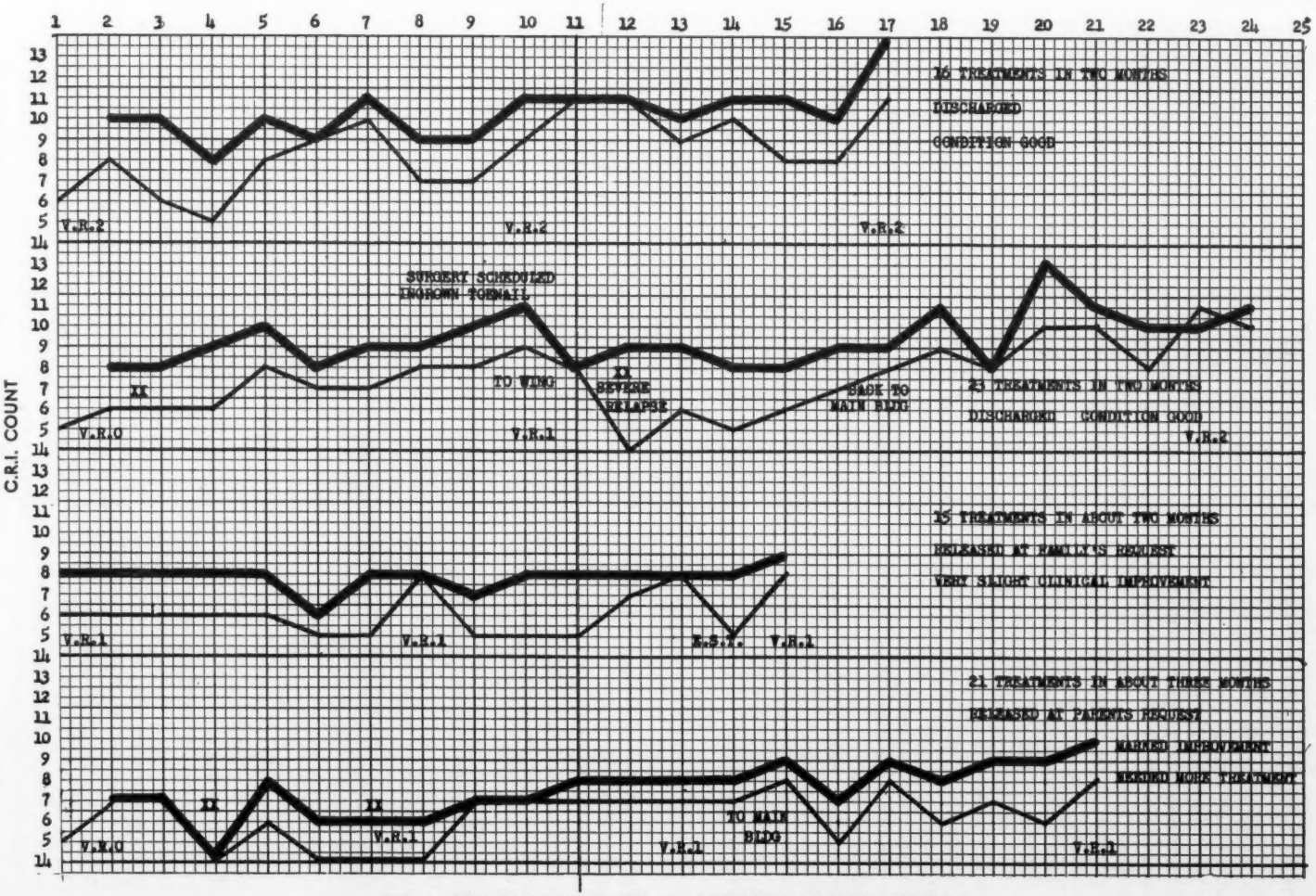


FIG. 1. REPRESENTATIVE CASES OF ABNORMAL CRANIAL RHYTHM.

CODE:	C.R.I.	Cranial rhythmic impulse count	V.R.	Cranial vault resiliency
	———	C.R.I. before each treatment	XX	Patient in restraint
	▬▬▬	C.R.I. after each treatment	S.H.O.S.	Still-Hildreth Osteopathic Sanatorium

alternation during vivid recall of a frightening experience.

Since we were unaware of the relationship of binocular alternations and cranial impulses at the beginning of our work, little testing of the binocular alternation rate was done on psychiatric patients. In many such cases, of course, it would be impossible to secure patient cooperation. However, decrease in the binocular alternation rate of psychiatric patients deserves investigation as a possible diagnostic procedure. No special palpatory skill on the part of the observer would be required, and any psychologic effect of the observer's personality on the patient would be decreased. It is our hope that some of our osteopathic psychiatrists will fully investigate this apparent decrease in binocular alternation rate in psychiatric patients.

Indeed, it is in the hopes of stimulating further investigations elsewhere that we have presented here the results of our study, which should be considered preliminary. A brief survey of some observations of other workers offering possible explanations as to the mechanism producing cranial impulses may suggest appropriate avenues of research.

Review

Sutherland[6] postulated slight movement at the cranial sutures produced by rhythmic changes in the shape of the brain, with the force of these brain movements transmitted to the cranium by the cerebrospinal fluid acting under hydraulic pressure. Theoretically this force would be opposed and balanced by the dura mater at the sutures and the dural septa which he designated as reciprocal tension membranes. He referred to the palpable cranial impulses as fluctuations of the cerebrospinal fluid, and in later writings he gave the cerebrospinal fluid greater emphasis.

Pritchard, Scott and Girgis[7] described the structure of the cranial sutures, pointing out that these sutures allow a small amount of expansile motion and probably are never entirely obliterated in man and the higher primates. If a disarticulated skull is reassembled and held by rubber bands a very orderly interplay of sutural motion may be produced by a force applied to only one or two points. In many skulls a definitely arthroidal type of articular surface may be found between the jugular processes of the occipital and temporal bones. It is difficult to believe that all the intricate grooving, changes in sutural beveling, and persistence of cartilage at the cranial base are merely provisions for brain and cranial growth.

Steindler[8] speaks of the pelvis, thorax, and spine as being constantly under an intrinsic expansile force which is opposed by ligamentous and fascial structures. He infers that this mechanism facilitates controlled motion of these parts. It might be postulated that the same is true of the cranium.

Possible mechanisms producing an intracranial force, other than that produced by cyclic variations due to cardiac and pulmonary activities capable of producing intermittent expansile sutural motion, are made more plausible by the following studies:

Using cats with electrodes permanently implanted in their brains, Clark and Misrahy[9] found a rhythmic variation in oxygen availability occurring at the rate of 8 to 12 cycles per minute. This is quite near the 10 to 14 cyclic impulses we detected in normal human adults. The rate observed in these cats showed no relationship to respiratory or cardiac activity. The administration of tranquilizing drugs decreased the amplitude but not the rate.

Other observers[10,11] have reported rhythmic contraction and relaxation of oligodendroglial cells in tissue cultures. The rate in these cultures was much slower than the *in vivo* rates observed by Clark or by ourselves, but this would not necessarily exclude a different rate of activity for these cells in the central nervous systems of living animals. Woolley and Shaw[10] speak of a possible "mechanical stirring" action of these cells on the circulation of the central nervous system.

Oligodendroglial cells are found in the white matter of the central nervous system, in close relationship to nerve fibers. Like the astrocytes of the gray matter, they are of neural origin. Power of contraction of cells of neural origin is possible, as shown by the smooth muscle of the iris, which is of neural origin.[12] It seems conceivable that, given a pacemaker mechanism as suggested by the work of Clark and Misrahy[9] with cats, a synchronous contraction of these oligodendroglial cells might exert a pull on the white fibers radiating to and from the cerebral cortex, thereby changing the shape and or size of the cerebrum.

Another possibility is that rhythmic variations in the smooth muscle of the basal cerebral blood vessels, perhaps related to cyclic changes in activity at serotonin and norepinephrine, could produce slight changes in the shape and/or size of the cerebrum. Clark and Misrahy[9] speculated as to such vascular variations in relation to the rhythmic variations in oxygen availability which they observed in cats.

The possibility must be kept in mind that if there is a decrease in the size only of the cerebrum during the two hypothetical mechanisms just presented, the expansile impulse is felt during the stage of the relaxation and expansion of the brain. However, we have not been able to detect an increase in the circumference of the cranium as a whole by crude plethysmograph testing. The tactile impression is that as the skull seems to widen slightly there is a synchronous decrease in the anteroposterior diameter. This suggests that possible changes in shape of the cerebrum should be considered in future investigations, and that the palpable impulses might coincide with the active phase of a postulated mechanism.

Conclusion

We wish to emphasize that our results and the dis-

cussion of hypothetical mechanisms are presented as possible fields for future investigation. We hope the reader will keep in mind the distinction between the observations reported in the first part of this article and the speculative presentations just completed. Even the first portion is considered as a preliminary report whose main purpose is to encourage others to develop a reliable method to aid in the diagnosis of psychiatric disorders. If the method of detecting variations in these cranial impulses can be made more objective, and if it proves as reliable as our experience suggests, the early diagnosis of psychiatric disorders, when they are most responsive to treatment, should be facilitated.

Summary

Kinesthetic palpation of the cranium reveals regularly recurring impulses. In 62 normal individuals the average rate of these impulses was 12.47 per minute, and in 102 psychiatric patients the average rate was 6.7 per minute. As a rule the lowest rates were found in the most disturbed patients. Two patients with a history of frontal lobotomy revealed rates of 4 impulses per minute. There is evidence suggesting a probable relationship between the rate of these impulses and the number of cycles of binocular alternation. Previously published work sheds light on possible mechanisms for the observed phenomena. There is urgent need for more research in relation to rhythmic cranial impulses.

Appreciation is expressed to the staff of Still-Hildreth Osteopathic Sanatorium for helping to make this study possible.

1. Laughlin, G. A.: Personal communication.
2. Stanley-Jones, D.: Reverberating circuits. J. Nerv. & Ment. Dis. 125:587-590, Oct.-Dec. 1957.
3. Bender, L.: Psychiatric problems of childhood. M. Clin. North America 42:755-767, May 1958.
4. Fish, B.: Detection of schizophrenia in infancy. J. Nerv. & Ment. Dis. 125:1-24, Jan.-March 1957.
5. Zoethout, W. D.: Physiological optics. Ed. 3. Professional Press, Chicago, 1939.
6. Sutherland, W. G.: Cranial bowl. Published by the author, Mankato, Minn., 1939.
7. Pritchard, J. J., Scott, J. H., and Girgis, F. G.: Structure and development of cranial and facial sutures. J. Anat. 90:73-86, Jan. 1956.
8. Steindler, A.: Kinesiology of human body under normal and pathological conditions. Charles C Thomas, Springfield, Ill., 1955.
9. Clark, L. C., Jr., and Misrahy, G.: Chronically implanted polarograph electrodes. Fed. Proc. 16:22, March 1957.
10. Woolley, D. W., and Shaw, E. N.: Evidence for participation of serotonin in mental processes. Ann. New York Acad. Sc. 66:649-665, March 14, 1957.
11. Benitez, H., Murray, M., and Woolley, D. W.: Anat. Rec. 121:446, 1955.
12. Keith, A.: Human embryology and morphology. Ed. 2. Williams & Wilkins Co., Baltimore, 1948.

Control of weight gain in pregnancy, utilizing methamphetamine

[redacted]

J. DUDLEY CHAPMAN, B.S., D.O., Rocky River, Ohio*

Of the myriad changes occurring in the maternal organism during pregnancy, the most trying is that of weight gain. This problem is one of daily concern to the practicing obstetrician, and is subject to wide variations. The allowable weight changes in pregnancy, as reported in the literature, vary over such a wide range that they tend to become fantastic.[1-4] These allowances have been based, in most instances, on bizarre, obsessive, or fetishistic approaches to the problems of patient needs.[4]

Of even more concern to the physician is controlling weight in the overweight patient, or in the patient who is gaining weight too rapidly. It is well accepted that excessive weight predisposes to obstetric complications, most outstanding being the toxemias of pregnancy.[1-4] The altered hemodynamics and fluid volumes place stress on the cardiovascular system, especially in the second and third trimesters, when weight control is of the greatest importance.

This condition, along with other stresses of pregnancy, make certain drugs used for weight control inadvisable, or make the obstetrician approach the use of the drug modalities with caution. For this reason, members of the obstetric department of Brentwood Hospital undertook a study of the effects of methamphetamine in a sustained-release form

*Address, 22122 River Oaks Drive

(Desoxyn Gradumet†) in overweight obstetric patients. The purpose was to evaluate the efficacy and safety of this drug in weight control in pregnancy.

Materials and methods

For this study, 105 gravid women were followed throughout pregnancy by members of the obstetric department of Brentwood Hospital. The patients were chosen because of overweight or excessive weight gain in the course of the pregnancy. No other criteria were utilized for selection or exclusion of the patient. The normal weight curves of Thompkins were utilized as standard for excessive weight gain, and in the last half of pregnancy a normal weight gain was considered to be 0.8 pound per week.[4] Patients were excluded in the first trimester since some nutritional studies have indicated that weight loss or rigid control in the first trimester might be hazardous to the fetus.[4]

To exclude bias in observation, the manufacturer furnished the drug in 5 mg., 10 mg., and 15 mg. sizes in both the active and placebo forms (double-blind study). The packages stated the name and size of the tablet, and were identically labeled except for a small code letter on the label. The code letter distinguished the active form from the placebo. The code was sealed and opened on completion of the study for interpretation of the results. All investigators recorded the code letter and strength size on their data sheets.

Patients were arbitrarily given the 5 mg. size if their initial weight was 100 to 120 pounds. They were given the 10 mg. size if their initial weight was 120 to 165 pounds. Patients whose initial weight exceeded 165 pounds were given the 15 mg. size. If the patient could not tolerate the beginning dosage, the next smaller size was utilized; if this failed to ameliorate the symptoms, the drug was discontinued.

The patients were seen routinely every 2 weeks. The usual prenatal routine was carried out, including evaluation of toxic signs, blood pressure, weight, pulse, urinalysis, fetal size, and uterine size. Blood counts were taken each trimester, and tests for blood chemistry at term. Some patients selected at random had electrocardiograms taken before and during the study. These same patients were then followed in labor with studies of total protein, albumin-globulin ratio, and electrolytes. These patients were not selected because of weight, intolerance to the medication, or any other factor than random choice of the investigators.

In several cases where weight gain was excessive and edema was evident, the patients were treated as indicated with a suitable diuretic.

All patients were given a routine vitamin-mineral prenatal supplement. The recommended diet stressed the use of protein and fresh vegetables, but did not limit quantity or proportions of food ingested. The six-meal-a-day plan was advised repeatedly.

Results

Seventeen patients were studied in the group taking 5 mg. of the medication per day (Table I). Six patients showed a controlled weight gain; 4 patients lost weight; and 2 patients showed no weight gain. Thus 70 per cent had a controlled weight gain in this period. The remaining 5 patients in this group (30 per cent) showed some degree of intolerance manifested as nervousness or insomnia. Two patients in the controlled weight group required

†Supplied for this study by Abbott Laboratories, through the courtesy of Dr. George H. Berryman.

TABLE I—RESULTS OF ADMINISTERING METHAMPHETAMINE IN 5 MG. DOSES

Gravida	Weight at onset of pregnancy	Weight at study beginning	Weeks gestation at study beginning	Weeks drug was given	Weight gained during study (pounds)	Average gain per week (pounds)	Side effects	ECG and laboratory results
I	125	142	27	13	8	0.6	None	—
I	140	141	30	8	6	0.8	None	—
III	147	151	28	12	4	0.3	None	—
VI	135	150	32	8	4	0.5	None	—
II	110	116	20	20	10	0.5	None	—
II	110	120	25	13	9	0.8	None	—
I	106	120	20	20	0	0.0*	Edema	—
II	100	130	20	20	0	0.0*	Edema	—
I	120	134	20	20	−2	Lost	None	OK
I	110	118	20	20	−2	Lost	None	OK
II	134	150	20	20	−4	Lost	None	—
V	132	154	24	—	—	—	Intolerance	—
II	110	134	27	—	—	—	Intolerance	—
I	121	144	26	—	—	—	Intolerance	—
II	140	158	30	—	—	—	Intolerance	—
I	110	130	23	—	—	—	Intolerance	—
IX	100	128	27	13	−5	Lost	None	OK

*Diuretics were given in this case.

TABLE II—RESULTS OF ADMINISTERING METHAMPHETAMINE IN 10 MG. DOSES

Gravida	Weight at onset of pregnancy	Weight at study beginning	Weeks gestation at study beginning	Weeks drug was given	Weight gained during study (pounds)	Average gain per week (pounds)	Side effects	ECG and laboratory results
V	150	170	24	16	6	0.5	Increased blood pressure	OK
III	110	122	22	16	7	0.4	None	OK
I	135	141	19	21	16	0.7	Increased blood pressure	OK
I	128	157	30	10	5	0.5	None	—
IV	175	182	20	20	18	0.8	None	OK
III	150	156	22	16	11	0.6	None	OK
VI	110	128	32	8	4	0.5	None	—
I	130	135	20	20	27	1.3	None	—
I	118	130	25	15	−2	Lost	None	OK
VI	162	175	32	8	10	1.2	Nervousness	OK
II	120	133	23	14	−2	Lost	None	—
II	128	136	23	15	18	1.2	None	—
V	163	166	28	12	−2	Lost	None	OK
III	120	134	23	17	13	0.7	None	OK
I	123	146	24	16	12	0.7	None	OK
II	143	155	24	13	19	1.5	Nervousness	OK
IV	115	137	24	14	−2	Lost	None	—
II	130	152	27	13	5	0.4	None	—
I	120	133	27	13	7	0.5	None	—
III	106	120	27	13	7	0.5	None	—
I	135	162	27	13	−2	Lost	None	—
III	145	168	25	15	3	0.2	None	OK
I	110	142	26	14	−2	Lost	None	—
II	121	126	25	15	11	0.8	None	—
II	150	166	25	15	3	0.2	None	—
II	120	133	28	13	3	0.2	Nervousness	—
III	115	134	24	13	−1	Lost	None	—
II	150	168	20	20	5	0.3	None	OK
II	162	173	20	20	10	0.5	Nervousness	OK
V	145	158	21	20	10	0.5*	Edema	OK
IV	156	171	20	20	9	0.5*	Edema	OK
III	142	160	22	18	9	0.5	None	—
V	136	151	24	16	8	0.5	Nervousness	—
IX	148	163	20	20	11	0.6	None	OK
I	136	148	22	18	−2	Lost	None	OK
II	148	155	24	16	−6	Lost	None	OK
V	155	163	24	15	−5	Lost*	Edema	OK
IV	166	178	24	14	−4	Lost*	Edema	OK
III	136	148	26	4	—	—	Intolerance	—
II	128	148	25	—	—	—	Intolerance	—
IV	136	149	28	—	—	—	Intolerance	—
I	126	148	20	18	−3	Lost	None	—
III	152	166	22	—	—	—	Intolerance	—

*Diuretics administered in this case.

diuretics to maintain the weight within acceptable limits.

There were 43 patients who took the 10 mg. tablets. Of this group, 12 patients lost weight, and 23 had a controlled weight gain, of whom 4 required diuretics to maintain this controlled weight pattern. This comprised 90 per cent of the total in this group. The remaining 10 per cent showed intolerance, or the weight gain was above acceptable limits (Table II).

Twenty patients took the 15 mg. tablet. Of this group, 11 patients lost weight, 3 had no weight gain, and 5 had a controlled weight gain. Only 1 patient showed symptoms of intolerance (Table III).

There were 25 patients in the control group that received the placebo. Eighteen of these patients continued to gain weight excessively, and 7 showed a controlled weight gain. Two patients showed symptoms of intolerance (Table IV).

Comment

These patients may be divided into several groups. The first is composed of patients who lost weight, representing 27 out of 80 taking the active drug. Weight loss varied from 2 to 6 pounds, in the last

TABLE III—RESULTS OF ADMINISTERING METHAMPHETAMINE IN 15 MG. DOSES

Gravida	Weight at onset of pregnancy	Weight at study beginning	Weeks gestation at study beginning	Weeks drug was given	Weight gained during study (pounds)	Average gain per week (pounds)	Side effects	ECG and laboratory results
II	200	202	24	16	8	0.5	Edema	OK
VI	230	247	20	20	−1	Lost*	Edema	—
I	205	243	31	9	−11	Lost	None	OK
I	200	204	30	10	−1	Lost	None	OK
II	175	190	20	20	0	None	None	OK
II	176	185	26	14	7	0.5	Nervousness	—
II	175	179	20	20	9	0.5*	Edema	—
IV	185	196	24	—	—	—	Intolerance	—
I	190	198	22	18	4	0.2	None	—
II	189	197	20	19	8	0.4	None	OK
VII	201	221	19	21	−12	Lost	Occasional nervousness	OK
IX	170	180	20	20	−1	Lost	None	OK
IV	165	183	20	20	−14	Lost	None	—
VI	160	175	21	18	−1	Lost*	Edema	OK
II	154	178	26	12	0	0.0	None	OK
IV	148	170	20	18	0	0.0	Occasional insomnia	OK
X	155	181	21	18	−1	Lost	None	OK
V	160	175	20	20	0	Lost	None	OK
I	152	175	20	17	−1	Lost	None	OK
III	200	210	22	12	−6	Lost	None	—

*Diuretics administered in this case.

trimester of pregnancy. There were no adverse effects observed in these patients as to cardiac signs, electrocardiographic findings, electrolytes, or serum proteins. The babies born to these mothers appeared normal and healthy.

The second group, composed of 32 out of 80 patients, manifested a controlled weight gain, varying from 2 to 11 pounds in the last half of pregnancy. The average weight gain for these patients was 0.5 pound per week, which is well within acceptable limits.[4]

Patients in the third group manifested some intolerance to the drug; these totaled 10 out of 80 patients. This intolerance was manifested as nervousness, gastrointestinal complaints of a bizarre nature, tachycardia, and insomnia. There were no alterations found on objective evaluation of these patients or their laboratory studies.

An interesting point was that when intolerance was found on a given dosage form, the dosage was diminished and the symptom pattern was found to be the same. Four patients, when the dosage was diminished, received the placebo and continued to have symptoms of "intolerance." These patients were all found to be highly suggestible and reacted as such to anorexic agents. Because of this finding, the patients were studied from a psychologic approach. The Thematic Apperception, Rorschach, and Draw-a-Man tests were administered. Five patients out of this group were found to have obsessive personality patterns, with considerable oral fixation, and anorexia provoking rather disturbing psychologic reactions.

The control group responded as might be expected. There were 7 patients who lost weight, presumably by suggestion. The remaining patients continued to gain weight at an excessive rate. The 2 patients showing intolerance were found, on psychologic studies, to have compulsive personality types and to be highly suggestible.

Another facet of this study is that occasionally a patient appeared not to respond to the medication and manifested this as a sudden gain in weight. This was nearly always found to be the result of accumulation of fluid, and the condition responded admirably to a suitable diuretic agent. It appears that by using this drug in combination with a suitable diuretic, it is possible to control weight satisfactorily in almost all patients.[5]

In imposing weight control on obstetric patients, one must be aware of and follow certain basic principles of nutrition. The fetus is a "parasite," and the maternal organism makes every effort to supply it with essential nutrients for proper formation, maintenance, and development. If weight is controlled too vigorously and the nutritional requirements of the maternal organism are not met, a deficiency of sufficient magnitude to jeopardize both patient and fetus may result. One must also be aware that overweight patients are nutritionally deficient. Consequently, excessive restrictions in the dietary of these patients will only aggravate or increase the deficiency state. Therefore, in controlling weight gain, we must be sure that they are receiving adequate nutrients and an adequate vitamin-mineral supplement.

TABLE IV—RESULTS OF ADMINISTERING PLACEBO (CONTROL GROUP)

Gravida	Weight at onset of pregnancy	Weight at study beginning	Weeks gestation at study beginning	Weeks drug was given	Weight gained during study (pounds)	Average gain per week (pounds)	Side effects	ECG and laboratory results
VI	118	135	26	13	23	1.6	None	—
I	165	176	28	12	12	1.0	Increased hunger	—
I	127	137	25	15	15	1.0	None	OK
II	120	142	30	10	1	0.1	—	OK
III	125	131	30	10	5	0.5	Nervousness	OK
II	185	192	20	20	8	0.5	None	OK
III	160	170	16	24	11	0.5	Insomnia	OK
IV	154	173	20	20	25	1.2	None	—
V	100	122	22	18	17	1.0	None	—
II	138	149	18	22	25	1.1	None	—
X	162	178	25	15	30	2.0	Nervousness	OK
I	112	118	20	20	10	0.5	None	—
III	125	136	24	16	9	0.6	None	OK
II	132	144	24	15	15	1.0	None	—
VI	149	165	26	—	—	—	Intolerance	—
II	135	144	24	14	16	1.0	None	—
I	100	124	22	18	9	0.5	None	—
IV	123	135	26	14	13	0.9	Nervousness	OK
V	165	177	30	10	10	1.0	None	—
IV	118	136	20	20	15	1.3	None	—
III	129	147	20	20	24	1.2	None	—
I	179	188	19	20	21	1.0	None	OK
IV	98	136	24	16	21	1.3	Depression	—
V	110	118	25	15	14	0.9	None	—
II	132	145	27	—	—	—	Intolerance	—

Conclusions

This study revealed no wonder drug for the control of weight or appetite in pregnancy. However, as observed in this double-blind study, methamphetamine does serve as a valuable aid in control of appetite and weight gain in the obstetric patient. It does not appear to have any detrimental effects on the function of the maternal organism and seemingly does not affect the fetal welfare. It does point out, however, that weight control is more than the use of drug modalities. It encompasses an understanding of psychology and the "oral" needs of these patients. It also requires a deeper understanding of human nutrition than most physicians are willing to explore.

We must control weight in pregnancy, and this can be done, as was seen in this study. We must, however, be on constant guard against overzealous restriction of nutrients. The maternal organism and fetal development require additional amounts of certain nutrients, and these must be supplied both in the form of foodstuffs and vitamin-mineral supplements. We must always be cognizant that the patient who gains weight abnormally in pregnancy, and the patient who is overweight, are nutritionally inadequate and need strenuous nutritional support.

Good prenatal care requires consideration of weight control, nutritional support, and control of fluid accumulation. These can be carried out with administration of methamphetamine, a good knowledge of nutrition, and suitable use of diuretics.

The limits of weight gain in the first trimester should be about 3 pounds, and beginning with the fifteenth week and extending to term, it should be approximately 0.8 pound per week.

Appreciation is expressed to Drs. Coan, Haynosch, Pristou, and Sevastos of the obstetric department of Brentwood Hospital for their invaluable help in collecting the data for this study.

1. Greenhill, J. P., ed.: Obstetrics. Ed. 12. W. B. Saunders Co., Philadelphia, 1960.
2. Beck, A. C., and Rosenthal, A. H.: Obstetrical practice. Ed. 7. Williams & Wilkins Co., Baltimore, 1958.
3. Eastman, N. J.: Williams Obstetrics. Ed. 11. Appleton-Century-Crofts, New York, 1956.
4. Lull, C. B., and Kimbrough, R. A., eds.: Clinical obstetrics. J. B. Lippincott Co., Philadelphia, 1953.
5. Bayly, M. A.: Desoxyephedrine as aid in weight control for pregnant clinic patients. Quart. Bull. Northwestern University M. School 34:193, Fall 1960.

The diagnosis of pulmonary embolism and infarction: II. Roentgenographic and differential studies

ALEXANDER PRICE, D.O., and MURRAY H. COHEN, D.O., Philadelphia, Pennsylvania*

Roentgenographic findings

As a diagnostic procedure in pulmonary embolism roentgenography is of extreme importance. There is, however, no evidence that any pattern found on the roentgenogram can be considered pathognomonic in itself, without correlation with the clinical and electrocardiographic findings. Almost any configuration of parenchymal abnormality may be demonstrated on x-ray films following embolism with infarction.

Findings in embolism • The most common changes noted in one series[43] were either a moderate-sized homogeneous density, or linear densities adjacent to a pleural surface and associated with effusion. In our series, among those cases in which changes were noted on the roentgenogram, 24 per cent demonstrated homogeneous densities, with no evidence of linear densities; 24 per cent demonstrated linear densities alone; 14 per cent demonstrated homogeneous densities developing on serial studies into linear densities; and 38 per cent demonstrated the presence of both homogeneous and linear densities.

Westermark[44] has called attention to the "ischemic lung," in which the average vascular pattern over an entire lung or lung segment disappears as a consequence of pulmonary embolism, with resulting occulsion of a large branch of the main stem of the pulmonary artery. Other roentgen findings include evidence of pleural adhesions, representing remnants of old infarcts; pleural effusion, which will be discussed later; and elevation of the diaphragm of the affected side. For an unknown reason, diaphragmatic elevation is present frequently in pulmonary embolism without infarction, as well as in embolism with infarction.[4] In our series, 41 per cent of cases with roentgenographic changes compatible with pulmonary infarction also had evidence of diaphragmatic elevation.

Pulmonary embolism without infarction may produce no roentgenographic abnormalities. It is occasionally recognized by the appearance of termination and dilatation of a large pulmonary arterial shadow.[5] Hampton and Castleman[3] described the roentgenographic findings in incomplete infarction as hazy densities visible for only 24 to 48 hours after embolism. However, they point out that complete infarction may not be visible during the first 48 hours after embolism and may be missed unless a roentgenogram is obtained later. They stress the clinical importance of recognizing the disappearing shadows of incomplete infarction, and of interpreting them as embolic rather than pneumonic in origin, since the roentgenographic evidence may be the only warning signal of a subsequent fatal massive embolus.

As described in the first section of this paper, a complete infarct usually undergoes a definite cycle, beginning as an acute hemorrhagic lesion; passing through a healing stage, at which time it becomes smaller, sharper, and denser, but maintaining its general shape; and finally ending as an organized healed scar.

As described by Hampton and Castleman,[3] the roentgenographic changes do not usually develop

Part I, on clinical and electrocardiographic findings, appeared in the July issue of THE JOURNAL.

Dr. Price is associate attending physician in the Department of Internal Medicine and Cardiology and Dr. Cohen is a resident in internal medicine at Metropolitan Hospital in Philadelphia.

*Address, Cherry Hill Hospital, Chapel Ave. and Coopers Landing Rd., Delaware Township, N. J.

before 12 hours and occasionally not before 24 hours after the onset of the signs and symptoms. At that early stage there is no definite destruction of the alveolar walls. There is merely a marked congestion of the capillaries and diapedesis of the erythrocytes into the dilated alveoli of the region involved.

In the early stage—that is, the first few days—only the alveoli may be filled with blood, while the larger units may remain aerated. Thus an infarct in this early stage is not uniformly solid grossly, and its roentgen shadow may be difficult to visualize. After the second day there is beginning necrosis of the alveolar walls and degeneration of the erythrocytes, fulfilling the pathologic definition of "infarct."

Organization begins usually during the second week, with the lesion becoming more solid and more sharply defined, and in time smaller. Depending upon the size of the infarct, organization may require weeks or months. The granulation tissue appears initially at the periphery of the infarct and slowly migrates inward, producing a pseudocapsule; this explains the sharp outline and the gradual shrinkage of older infarcts. Thus a small infarct will become a fibrous scar much sooner than a very large one.

Since the infarct is sharp in outline, the roentgen shadow cast by it will also be sharp if the central ray is projected parallel to the margins of the lesion. Thus, it might be sharp in lateral view but indistinct in posteroanterior view. The shape of the infarct is dependent entirely on the shape of the part of the lung it involves.[4] The infarct always extends to the pleural surface, since all lung distal to the occlusion becomes necrotic because it lacks sufficient collateral circulation. Thus the pleural surfaces will form at least one side or, more frequently, two or three sides of the infarct. Since infarcts may involve any peripheral portion of the lung, including the surface of the interlobar fissures, Hampton and Castleman[3] advise that both oblique and lateral views of the chest be obtained to differentiate accurately between infarction consolidation and other pathologic changes.

Shadows of infarcts may be roughly triangular in the posteroanterior view of the chest, but are rarely actually triangular in shape. The pleural surfaces are in contact with the chest wall, except along the interlobar pleura. The two sides of the triangle formed by the pleural surfaces are not visible, and there is no contrast between the infarct and the chest wall at the points where the triangular shadow would be more readily visualized. In instances when infarcts are roughly pyramidal, the apex of the pyramid is directed away from the heart, and the cardiac margin is rounded.

The base of the infarct never extends to the hilum. Roentgenograms always demonstrate a clear, uninvolved area of lung parenchyma between the medial border of the infarct and the hilum.[3]

Arendt and Rosenberg[9] describe the rather rare wedge-shaped densities as "truncated cones," since the apex of the wedge is cut off in each instance. They also describe an "umbrella-shaped density" which they feel is characteristic. Smaller infarcts are described as having a cuboid or meniscuslike appearance. They feel that the "hump-shaped" elevation on the medial side of a small pleuritis in the costophrenic angle appears diagnostic. They also describe the "parabolic shadow," best seen on the lateral roentgenograms, occurring when the interlobar fissure forms the base of embolic infarcts.

In our series, there were 3 cases in which the "truncated cone" configuration could be delineated, and 3 with a configuration like the "hump-shaped" density.

When more than one infarct occurs in the same lung, and when they are closely placed, the sharply defined shadows, which vary in shape, can be projected so as by summation to produce any shape. Therefore, Hampton and Castleman[3] stress the importance of separating the shadows into their component parts, and of determining their size, shape, and location to differentiate them from tumors and other pathologic conditions.

Differential findings • Interlobar pleuritis can usually be readily differentiated from healed infarcts or platelike atelectasis if the location of the linear shadow corresponds to the position of the interlobar fissure. There is usually other associated evidence of pleurisy, such as fluid or pleural thickening nearby.[45]

Although infarcts frequently are adjacent to the interlobar pleura, they are seen as a more nodular, unilaterally placed shadow, near the thin line of the readily recognized interlobar fissure. If the linear shadow is perpendicular to one of the interlobar fissures, interlobar pleurisy is readily ruled out. Shadows of infarcts are usually shorter than in atelectasis, but are in a similar plane; each infarct producing one line may end in nodular extremities, and may run in any direction.[45]

Platelike foci of atelectasis are usually long, traversing the entire portion of the involved lung and extending from one pleural surface to another. They are often multiple and occur in different planes; one focus produces multiple, closely placed, nearly parallel lines, and there are no nodular irregularities.

Linear shadows occur in the healing and healed stages of pulmonary infarction. MacLeod and Grant[24] suggest that these are produced by sharply localized lesions of the pleura and subjacent lung, in contrast to others who claim atelectasis as the probable cause of many of the linear opacities in pulmonary embolism.

The linear opacities of pulmonary infarction must be differentiated from those of atelectasis and interlobar pleuritis. Fleischner, Hampton, and Castleman[45] explain that if serial roentgenograms have been taken during the development of the infarct, the linear opacities are easily differentiated. They describe the characteristic density found in pulmonary infarction as a single line running in almost any direction, but always reaching the pleural sur-

face, where it often ends at a nodular rounded shadow. This nodular moundlike shadow lies flat against the pleural surface, and its center is convex toward the linear shadow. There may be a V-shaped thickening of the pleura on retraction of the pleural surface instead of the moundlike shadow. The linear shadows of platelike atelectasis usually disappear within a few days, whereas that of a healed infarct persists.

Platelike atelectasis is very uncommon in upper lung fields, but pulmonary infarction occasionally occurs in this location.[15] In our series, there were 2 cases of pulmonary embolism in which linear shadows were present in the upper lung fields, representing 9 per cent of the cases with linear shadows.

As mentioned before, an infarct always extends to the visceral pleura. As a result, pleural inflammation occurs, producing pain and frequently effusion. In Hampton and Castleman's series[3] 40 per cent of patients demonstrated effusion, but in only 13 per cent of the total could a causal relationship be inferred. They felt that in the remainder the condition was more likely caused by congestive heart failure. In some instances the effusion was present on the side opposite to the infarcts.

Our series included 8 patients with pleural effusion, constituting 28 per cent of those whose x-ray studies demonstrated pathologic change. All were associated with either linear or homogenous densities. In 1 case in which an interlobar effusion was demonstrated on the roentgenogram, the pulmonary infarction was demonstrated at that specific site at necropsy.

The following findings are diagnostic of a thrombus in the main branches of the pulmonary artery: a marked widening and prominence of the involved pulmonary artery with a sudden diminution of the caliber, or a complete cut off of the secondary branches beneath the usual massive embolus, or complete cut off of pulmonary arteries with absence of peripheral vasculature where it previously had been demonstrated. In the absence of both hilar vessels, a large saddle embolus must be considered.[9]

Thromboembolism with infarction does not usually present Westermark's sign of increased translucency of a lung segment, since it occurs most often in a congested lung with dilated bronchial arteries and numerous collaterals.[9] The reliability of the ischemic lung as a sign in pulmonary embolism has been questioned by some investigators. In one series[44] it appeared to be relatively rare. This sign was noted in 1 case in our series.

Israel and Goldstein[1] reported that 83 per cent of chest x-rays in their series of cases diagnosed as pulmonary embolism demonstrated evidence suggestive of pulmonary embolism. In our series of 57 cases, 37 had roentgenograms taken at significant times. Of these 37 cases, 29 (78 per cent) demonstrated roentgenographic findings that could be considered compatible with pulmonary embolism. Optimal serial studies were not obtained in many of these cases. In 4, the progressive change from a homogenous density to a linear density was noted. Such a progression is highly significant in the diagnosis of pulmonary embolism. Of those cases in which roentgenograms were not taken at opportune times, 50 per cent of patients were terminal and too acutely ill for satisfactory roentgenographic studies to be taken, and in 50 per cent roentgenograms were not made because pulmonary embolism was not suspected. The embolic phenomenon was found at necropsy.

Stein and his associates[43] studied the interval between the onset of symptoms and roentgen changes in 50 patients. They found that 82 per cent demonstrated changes within the first 48 hours. Only 1 demonstrated changes thereafter. In their experience, delayed appearance of roentgenographic densities is relatively uncommon. They found that in only 1 case in a series of 36 did x-ray changes resolve in less than 3 days; in only 4 did they resolve in less than 8 days; 12 resolved in 8 to 28 days; and 19 in more than 28 days.

On the basis of these studies, our study, and others, we recommend that the following serial study be performed when pulmonary embolism is suspected: that the first roentgenogram be taken 12 to 48 hours after the original episode; the second 3 to 5 days after the first; and others at 5- to 10-day intervals thereafter for as long as required to establish a pattern characteristic of pulmonary embolism and to indicate satisfactory resolution without complications.

Other diagnostic studies

From the foregoing discussion, it is obvious that with the combination of signs, symptoms, and electrocardiographic and roentgenographic evidence, it will still sometimes be difficult to make a diagnosis of pulmonary embolism with certainty. There are other ancillary measures which occasionally may be of aid.

Serum glutamic oxaloacetic transaminase studies may be important in differential diagnosis of myocardial infarction from pulmonary embolism. Goldstein, Israel, and Seligson[46] demonstrated in their series that significant elevations in this serum enzyme level do not occur following uncomplicated pulmonary embolism. Normal values occurring during the first 24 to 48 hours present strong evidence against the diagnosis of myocardial infarction. Elevation of serum transaminase levels does not rule out pulmonary embolism which may be complicating the cardiac problem; furthermore, it may be evidence of subendocardial infarction complicating the pulmonary embolic accident.[1]

The erythrocyte sedimentation rate and the presence of leukocytosis have not proved to be of value in the diagnosis of pulmonary embolism. Both are affected by the presence or absence of thrombophlebitis, pneumonitis, and other associated or complicating conditions.[22]

Establishment of the presence of thromophlebitis

is helpful in the diagnosis of pulmonary embolism. Routine measurements of calf and thigh girth at various levels daily during the postoperative period have been recommended.[30] This would similarly apply in cases suspected as pulmonary embolism, in which the source of emboli is not apparent and in which obvious evidence of thrombophlebitis may not occur until after the pulmonary vascular accident. A sphygmomanometer cuff pain test has been described by Lowenberg[47] as an aid in diagnosis of subclinical thrombophlebitis. Evidence of unilateral pain with a pressure of 60 to 150 mm. Hg is evidence of the probable site of thrombus formation and for localization of the source of emboli.

Arterial oxygen unsaturation, as discussed before, is noted in a significant group of patients with acute pulmonary embolism. This observation is useful in the differential diagnosis of pulmonary embolism since it is exceedingly uncommon in most other diseases resembling this vascular accident.[27]

Establishment of pulmonary hypertension by cardiac catheterization, with a normal wedge pressure, is of obvious value. Demonstration of a major pulmonary vascular obstruction by angiocardiography is diagnostic.[38] The difficulties inherent in the routine use of these two procedures in suspected pulmonary embolism are apparent.

With all of the diagnostic procedures available, a diagnosis of pulmonary embolism or infarction during life usually depends on circumstantial evidence, and the diagnosis is made with certainty only at necropsy.[24]

Clinical classifications

In order to simplify the complicated maze of presenting symptomatology and clinical syndromes, an attempt has been made to correlate them with the size of the embolus and degree of infarction. The autopsy findings have been helpful to some degree in establishing the correlation.

Arendt and Rosenberg,[9] on the basis of such findings, have divided embolic phenomena to the lungs into three categories: First are incidental emboli which do not contribute materially to the death of the patient, and present no premonitory signs or clinical symptoms. Second are contributory emboli, which are multiple or larger in size and produce definite clinical symptoms. Third are massive emboli which block branches of the pulmonary artery and lead rapidly to asphyxia or anoxemia, or showers of emboli blocking a wide field of pulmonary circulation with the same effects. In our series of 57 cases, of which 22 were autopsied, 3 demonstrated incidental emboli; 8 demonstrated contributory emboli; and 11 demonstrated massive emboli. The significance of this classification is more marked in retrospective study, and investigation of the correlation of signs and symptoms with pathologic changes, than it is in clinical diagnosis.

De Takats[10] has formulated a workable clinical classification for pulmonary embolism, describing four recognizable forms:

1. The suspected or subclinical embolus. This presents with a short period of dyspnea, perspiration, and tachycardia, but there are no physical findings, no roentgenographic or electrocardiographic evidence, and no peripheral evidence of thrombi. It may represent the small shower of emboli to be followed by a larger embolus, and should serve as a warning sign.

2. The small pulmonary infarct. This may be single or multiple. Pleural pain is the outstanding and sometimes the only symptom.[18] Pleural effusion may occur. Physical examination may reveal absent or diminished breath sounds, dullness on percussion, pleuritic rub, and rales. Atelectasis or pneumonia may supervene.

3. The massive sublethal pulmonary embolism. This presents with the sudden onset of evidence of an obvious serious vascular accident. The patient may describe sudden overpowering thoracic pain, associated with dyspnea, marked weakness and faintness, and a horrible sensation of rapidly impending death.[32] Syncope may be more prominent than dyspnea. Examination reveals the signs of shock with tachypnea, often a gallop rhythm, and an accentuated pulmonic second sound. The clinical picture is suggestive of coronary occlusion. The acute hypotension in arteriosclerotic patients may produce signs of a cerebral vascular accident. Reflex effects on the gastrointestinal tract may simulate abdominal emergencies. It should be noted that large infarcts may give rise to severe pain, dyspnea, and cyanosis, but without acute collapse, while multiple small peripheral emboli may reflexly produce syncope, pallor, and acute hypotension.

4. The fatal pulmonary embolus. These are large emboli which occlude the pulmonary artery or both main branches and lead to a rapid death because of marked reduction of left ventricular cardiac filling and output.[8,28] An embolus which occludes a branch of the pulmonary artery, or one which terminates in a lobar branch, does not produce enough direct mechanical obstruction to explain sudden death.[8] It is postulated that pulmonary hypertension resulting from reflex pulmonary arterial vasoconstriction is responsible for death in these cases.[8,20] In one series it was shown that 85 per cent of patients suffering fatal pulmonary embolism die in less than 10 minutes. However, with proper therapy, many patients will survive the initial impact. Thereafter, they may die of progressive dilatation and failure of the right heart. One investigator[48] suggests that patients showing a progressive increase in cor pulmonale with distention of neck veins should be operated upon (thromboembolectomy) within 2 to 3 hours after the onset of symptoms.

Clinical classifications such as these do not appear to be sufficient to elucidate the presenting pictures of pulmonary embolism. It would seem to be more satisfactory to divide these manifestations into syndromes. Such a classification, modified from the work of Israel and Goldstein,[1] is shown in Table V.

TABLE V—CLASSIFICATION OF CLINICAL SYNDROMES REPRESENTING PULMONARY EMBOLISM

I. Classical clinical syndromes
II. Respiratory syndromes
  A. Pneumonialike
  B. Dry pleurisy
  C. Pleural effusion alone
  D. Resembling tuberculosis
  E. Resembling bronchogenic carcinoma
  F. Lung abscess
  G. Simulating atelectasis
III. Cardiovascular syndromes
  A. Intensification or precipitation of congestive heart failure
  B. Simulating myocardial infarction
  C. Simulating coronary insufficiency
  D. Chronic cor pulmonale
  E. Tachycardia, digitalis toxicity, and mercurial-fast edema in patients with congestive heart failure
  F. Paroxysmal arrhythmias
VI. Neuropsychiatric syndromes
  A. Syncope
  B. Cerebrovascular insufficiency with hemiplegia and/or convulsive phenomena
  C. Psychiatric manifestations
V. Abdominal syndromes
VI. Others
  A. Unexplained fever
  B. Unexplained leukocytosis
  C. Sudden death

Differential diagnosis

The classical clinical syndrome of pulmonary embolism has been described as precipitate dyspnea, pleuritic or oppressive chest pain, cough, and hemoptysis,[5] with evidence of a common etiologic factor, such as thrombophlebitis or a postoperative state. The diagnosis is not difficult when such a syndrome is present.

Other pulmonary disorders • Predominantly respiratory symptomatology was reported in 43 per cent of Israel and Goldstein's cases.[1] The pneumonic type of pulmonary embolism with infarction is a common representative of this group. Characteristically, it presents as a prolonged febrile illness lasting for 3 to 4 weeks or more, with a sustained high fever and with roentgenographic and clinical evidence of pulmonary consolidation.[29] Since pneumonia is almost invariably preceded by upper respiratory tract infection, the absence of symptoms suggesting this should alternatively suggest the diagnosis of pulmonary embolism.[1] The roentgenographic serial progression to a linear scar is an important differential diagnostic point in favor of the pulmonary embolic episode.

Pleuritic manifestations are common. Dry pleurisy is manifested as pleural pain, a friction rub, and a negative roentgenogram. These will not occur in pneumonia and are rarely manifested in tuberculosis, but pleurodynia must be considered.[1] If there is no evidence of active tuberculosis in the lungs, and apical adhesions are not present, dry pleurisy and even pleuritis with a sterile effusion is more likely to be caused by pulmonary infarction than by tuberculosis.[3]

As mentioned in Part I in the discussion on physical signs, pleural effusion of considerable magnitude may be produced by infarcts. At times this may be the only obvious clinical manifestation. At times it will present as unexplained bloody sterile pleural effusion.[5] If the pleural effusion is preceded or followed by a roentgen shadow simulating a pulmonary infarct, the diagnosis of this pulmonary vascular disorder is almost certainly established.[3] When such has not or cannot be demonstrated, the absence of evidence of tuberculosis or neoplasm on pleural biopsy favors the diagnosis of pulmonary infarction.

Pulmonary infarcts reduce the size of the lung and in this manner simulate atelectasis, especially when the right middle lobe is involved.[3] The difficulties in differential diagnosis of linear shadows on the roentgenogram cannot be overemphasized, in spite of the helpful considerations mentioned in the section on roentgenography for differential diagnosis. The presenting symptomatology may also be attributable to either situation. Serial roentgenographic studies are most effective in distinguishing the two entities.

The differentiation is further complicated by the fact that there may be a causal relationship between pulmonary infarction and atelectasis, so that atelectasis may occur in patients because of immobilization and secondary to pulmonary infarction. Furthermore, both conditions may be present at the same time, secondary to the same etiologic agent, as in a postoperative state with immobilization.

It is not rare for the clinical and roentgenographic picture of pulmonary infarction to be confused with bronchogenic carcinoma. On the roentgenogram the infarcts may assume a rounded form; even with chest pain and hemoptysis, there may be serious question about the possible presence of neoplasm.[1]

Hampton and Castleman[3] reported 3 cases diagnosed erroneously as cancer. They point out that it may be possible to demonstrate small portions of aerated lung between areas of infarction, inferring absence of obstruction of the bronchus, and helping to rule out neoplasm and rule in pulmonary embolism.

Perkins and Bradshaw[49] presented case histories in which pulmonary infarction was mistaken for bronchogenic carcinoma. Among these cases was one in which the presenting roentgenographic configuration was that of a coin lesion in the periphery of the right lower lung field, associated with hemoptysis. Operation proved the embolic origin of the pathologic change. In another of their cases a large infarct caused sufficient diminution in the volume of a lobe to simulate collapse caused by endobronchial neoplasm, with an associated oval hilar mass lesion.

In our series, there was 1 case in which linear atelectasislike densities, associated with a mottled consolidative area on the roentgenogram, prompted a chest physician to recommend performance of various procedures to rule out his first choice of diagnostic possibilities, bronchogenic carcinoma. The patient's history included pleuritic symptoma-

tology, a 15-pound weight loss in 3 to 4 months, anorexia, "cigarette habit," and a dry hacking cough. One evening during his hospitalization he was found to be straining and breathing heavily at stool, and he was escorted to his room by the nurses, where he died suddenly. Necropsy findings included a saddle pulmonary embolus, small thrombi with infarcts, and an organized thrombus in the right femoral vein.

Pulmonary tuberculosis may be simulated by pulmonary embolism with infarction. Israel and Goldstein[1] reported one case in which a patient whose wife had tuberculosis had hemoptysis and roentgenographic evidence of right subclavicular infiltration. He proved later to have pulmonary embolism originating in the axillary vein.

Pulmonary infarcts may become secondarily infected with necrosis-producing pulmonary abscesses. Occasionally, with otherwise asymptomatic infarcts, this may be the presenting pathologic manifestation.

Cardiac disorders • Cardiac manifestations were noted in 47 per cent of Israel and Goldstein's cases.[1] Pulmonary embolism is a frequent cause for precipitation and intensification of congestive heart failure, and may be responsible for refractoriness of heart failure to all therapeutic agents.[11]

In a study performed by Tench[50] the association of tachycardia, digitalis toxicity, and mercurial-fast edema in a patient with congestive heart failure was almost invariably associated with pulmonary embolism. Similarly, intractable edema alone in patients with congestive heart failure was strong evidence in favor of pulmonary embolism, while satisfactory diuresis appeared to indicate absence of multiple embolic phenomena.

The difficulties in differentiation between pulmonary embolism and myocardial infarction have been discussed in other sections of this paper. The occurrence of pulmonary embolism as a complication of myocardial infarction, and the occurrence of myocardial infarction secondary to hypertension in patients with coronary artery disease, further complicate the diagnostic picture.[1] Helpful differential diagnostic points include the fact that early in the course of a myocardial infarction the temperature is normal, while in pulmonary embolism the temperature is elevated with the onset of pain; and that brief episodes of syncope or vascular collapse are much more common before the onset of pain in pulmonary embolism than in myocardial infarction.[51]

Angina pectoris and coronary insufficiency may be simulated by recurrent small embolization. These same recurrent emboli, symptomatic or asymptomatic, occluding major or peripheral branches of the pulmonary artery, may result in chronic cor pulmonale. Owen and his associates[52] reported 12 cases of chronic cor pulmonale resulting from insidious and unrecognized emboli.

Other manifestations • The neuropsychiatric and abdominal manifestations have been discussed in the section on signs and symptoms. Sudden death has also been discussed.

Unexplained fever in the adult patient who has congestive heart failure, or in the cardiac patient who is subjected to bed rest for any reason, is most commonly caused by pulmonary embolism. Similarly, febrile states in patients with rheumatic heart disease may be interpreted as evidence of recurrence of acute rheumatic fever, while the actual cause may be pulmonary embolism.

In spite of the various diagnostic aids available to the physician, and even with the help of the clinical patterns presented above, the experienced clinician will attest to the frequent difficulty in the diagnosis of pulmonary embolic phenomena. In a study of 60 autopsied cases at the University of Edinburgh by MacLeod and Grant,[24] difficulty was noted in reconciling the variable and transient clinical and roentgenographic features with the pathologic conception of pulmonary embolism. In addition to the difficulty presented by this lack of correlation, pre-existing disease, often predisposing to pulmonary embolism, may offer an explanation for the symptomatology of an unsuspected embolic accident.

A high degree of suspicion must be maintained in patients with problems predisposing to pulmonary embolism and in whom there is evidence of sudden precipitate symptomatology. When the diagnosis is highly probable and cannot be proved, therapy for pulmonary embolism should be instituted immediately. Too often skepticism has been rewarded by evidence of embolic phenomena at necropsy.

Summary

The incidence of pulmonary embolism is much higher in general hospitals than is generally recognized. Diagnosis is difficult, and is often missed entirely until it is revealed by necropsy. This paper has been a review of the diagnostic aspects of this condition, including discussions based on the literature and a study of 57 cases of diagnosed pulmonary embolism from Metropolitan Hospital.

Diagnosis of pulmonary embolism is greatly aided by applying available information about common predisposing factors and sites of origin for emboli. In one respect our findings differed from those reported in the literature: In our cases postoperative occurrence of embolism was most frequent in the first postoperative week, rather than in the second week. We would therefore caution against using in differential diagnosis this point as it has previously been reported.

There are noteworthy differences between complete and incomplete pulmonary infarctions, and embolization without infarction; these have been described. Signs and symptoms of both states have been given. Our clinical study suggested that dyspnea is a universal symptom of pulmonary and embolic phenomena.

Significant diagnostic help can be obtained through a study of electrocardiographic and roent-

genographic findings, particularly if serial examinations are made. Other procedures and laboratory tests which can be used with benefit are cardiac catheterization, angiocardiography, sphygmomanometry, and determinations of serum glutamic oxaloacetic transaminase and arterial oxygen saturation.

Although a number of different classifications have been offered, it is suggested that one based on the clinicopathologic correlation of pulmonary embolic phenomena as related to cause of death is most helpful for retrospective correlation and study of clinical manifestations.

It is stressed that this condition is difficult to diagnose. The importance of prompt treatment makes it necessary to avoid the delay which can come from regarding this diagnostic possibility with undue skepticism in seemingly equivocal cases.

1. Israel, H. L., and Goldstein, F.: Varied clinical manifestations of pulmonary embolism. Ann. Int. Med. 47:202-226, Aug. 1957.

2. Short, D. S.: Survey of pulmonary embolism in general hospital. Brit. M. J. 1:790-796, April 12, 1952.

3. Hampton, A. O., and Castleman, B.: Correlation of postmortem chest teleroentgenograms with autopsy findings, with special reference to pulmonary embolism and infarction. Am. J. Roentgenol. 43:305-326, March 1940.

4. Torrance, J., Jr.: Cited by Parker, B. M., and Smith, J. R.: Pulmonary embolism and infarction; review of physiologic consequences of pulmonary arterial obstruction. Am. J. Med. 24:402-407, March 1938.

5. Parker, B. M., and Smith, J. R.: *Op. cit.*, ref. 4.

6. Farmer, D., A., and Smithwick, R. H.: Thromboembolic disease; discussion of problem in surgical patients with particular reference to fatal embolus. Angiology 1:291-301, Aug. 1950.

7. Kerr, A., Jr.: Subacute bacterial endocarditis. Charles C Thomas, Springfield, Ill., 1956.

8. Harris, H. W.: Pulmonary embolism and infarction. M. Clin. North America 43:69-87, Jan. 1959.

9. Arendt, J., and Rosenberg, M.: Thrombo-embolism of lungs. Am. J. Roentgenol. 81:245-254, Feb. 1959.

10. de Takats, G.: Vascular surgery. W. B. Saunders Co., Philadelphia, 1959.

11. Friedberg, C. K.: Diseases of heart. Ed. 2. W. B. Saunders Co., Philadelphia, 1956.

12. Paul, O., Olwin, J. H., and Johnson, B.: Embolism from heart and blood vessels. M. Clin. North America 41:33-43, Jan. 1957.

13. Moran, T. J.: Autopsy incidence of pulmonary embolism in coronary heart disease. Ann. Int. Med. 32:949-953, May 1950.

14. Kinsey, D., and White, P. D.: Fever in congestive heart failure. Arch. Int. Med. 65:163-170, Jan. 1940.

15. Snapper, I., Turner, L. B., and Moscovitz, H. L.: Multiple myeloma. Grune & Stratton, New York, 1953.

16. Belt, T. H.: Late sequelae of pulmonary embolism. Lancet 2:730-733, Sept. 30, 1939.

17. Barker, N. W.: Diagnosis and treatment of pulmonary embolism. M. Clin. North America 43:1053-1063, July 1958.

18. Allen, E. V., Barker, N. W., and Hines, E. A.: Peripheral vascular diseases. W. B. Saunders Co., Philadelphia, 1946.

19. Zimmerman, L. M., Miller, D., and Marshall, A. N.: Pulmonary embolism; its incidence, significance, and relation to antecedent vein disease. Surg., Gynec. & Obst. 88:373-388, March 1949.

20. de Takats, G., and Jesser, J. H.: Pulmonary embolism; suggestions for its diagnosis, prevention and management. J. Am. M. A. 114:1415-1421, April 13, 1940.

21. Dehlinger, K., and Riemenschneider, P.: Pulmonary embolism; analysis of 74 autopsied cases since 1941. New England J. Med. 240:497-501, March 31, 1949.

22. Wright, I. S., and Foley, W. T.: Pulmonary embolism and pulmonary infarction in Bronchopulmonary diseases; basic aspects, diagnosis and treatment, edited by E. A. Naclerio. Paul B. Hoeber, New York, 1957, p. 209.

23. Roach, H. D., and Laufman, H.: Relationship between pulmonary embolism and pulmonary infarction. Surgical Forum 5:214-219, 1954.

24. MacLeod, J. G., and Grant, I. W. B.: Clinical, radiographic, and pathological study of pulmonary embolism. Thorax 9:71-83, March 1954.

25. Ball, K. P., Goodwin, J. F., and Harrison, C. V.: Massive thrombotic occlusion of large pulmonary arteries. Circulation 14:766-783, Nov. 1956.

26. Levine, S. A.: Clinical heart disease. Ed. 5. W. B. Saunders Co., Philadelphia, 1958.

27. Robin, E., *et al.*: Alveolar gas exchange in clinical pulmonary embolism. New England J. Med. 262:283-287, Feb. 11, 1960.

28. de Takats, G., Beck, W. C., and Fenn, G. K.: Pulmonary embolism; experimental and clinical study. Surgery 6:339-367, Sept. 1939.

29. Hinshaw, H. C.: Pulmonary embolism, in Chest and heart, edited by J. A. Myers and C. A. McKinlay. Charles C Thomas, Springfield, Ill., 1948, vol. 1, pp. 556-557.

30. Krause, S., and Silverblatt, M.: Pulmonary embolism. Arch. Int. Med. 96:19-25, Jan. 1955.

31. Katz, L. N., and Saphir, O.: Nerve plexus between aorta and pulmonary artery; observations on its nature and function. Am. J. Physiol. 104:253-258, April 1933.

32. Jesser, J. H., and de Takats, G.: Visualization of pulmonary artery during its embolic obstruction. Arch. Surg. 42:1034-1041, June 1941.

33. Jesser, J. H., and de Takats, G.: Bronchial factor in pulmonary embolism. Surgery 12:541-552, Oct. 1942.

34. Wolff, L.: Electrocardiograph; fundamentals and clinical application. Ed. 2. W. B. Saunders Co., Philadelphia, 1956.

35. Kuo, P. T., and Vander Veer, J. B.: Electrocardiographic changes in pulmonary embolism with special reference to early and transient shift of electrical axis of heart. Am. Heart J. 40:825-838, Dec. 1950.

36. Sodi-Pallares, D.: New bases of electrocardiography. C. V. Mosby Co., St. Louis, 1956.

37. Phillips, E., and Levine, H. D.: Critical evaluation of extremity and precordial electrocardiography in acute cor pulmonale. Am. Heart J. 39:205-216, Feb. 1950.

38. Langfield, S. B., Hopkins, F. T., and Theurkauf, E. A., Jr.: Chronic cor pulmonale due to multiple pulmonary emboli and accompanied by diffuse interstitial fibrosis. Am. J. Med. 27:494-500, Sept. 1959.

39. Goldberger, E.: Unipolar lead electrocardiography and vectorcardiography. Ed. 3. Lea & Febiger, Philadelphia, 1953.

40. Barker, J. M.: Unipolar electrocardiogram. Appleton-Century-Crofts, New York, 1952.

41. Burch, G. E., and Winsor, T.: Primer of electrocardiography, Ed. 3. Lea & Febiger, Philadelphia, 1955.

42. Katz, L. N.: Electrocardiography, including atlas of electrocardiograms. Ed. 2. Lea & Febiger, Philadelphia, 1946.

43. Stein, G. N., *et al.*: Importance of chest roentgenography in diagnosis of pulmonary embolism. Am. J. Roentgenol. 81:255-263, Feb. 1959.

44. Westermark, N.: Roentgen studies of lungs and heart. University of Minnesota Press, Minneapolis, 1958.

45. Fleischner, F., Hampton, A. O., and Castleman, B.: Linear shadows in lung. Am. J. Roentgenol. 46:610-618, Nov. 1941.

46. Goldstein, F., Israel, H. L., and Seligson, O.: Use of serum transaminase levels in differentiation of pulmonary embolism and myocardial infarction. New England J. Med. 254:746-749, April 19, 1956.

47. Lowenberg, R. I.: Early diagnosis of phlebothrombosis with aid of new clinical test. J. Am. M. A. 155:1566-1570, Aug. 28, 1954.

48. White, P. D.: Pulmonary embolism and heart disease; review of 20 years of personal experience. Am. J. M. Sc. 200:577-581, Nov. 1940.

49. Perkins, R. B., and Bradshaw, H. H.: Pulmonary infarction mistaken for bronchogenic carcinoma. J. Am. M. A. 151:545-548, Feb. 14, 1953.

50. Tench, W. R.: Triad of tachycardia, digitalis toxicity and mercurial-fast edema in congestive heart failure complicated by pulmonary embolism. Am. J. Med. 19:869-871, Dec. 1955.

51. Sagall, E. L., Bornstein, J., and Wolff, L.: Clinical syndrome in patients with pulmonary embolism. Arch. Int. Med. 76:234-238, Oct. 1945.

52. Owen, W. R., *et al.*: Unrecognized emboli to lungs with subsequent cor pulmonale. New England J. Med. 24:919-926, Dec. 3, 1953.

EDITORIALS

THE JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION

This periodical is the official publication of the American Osteopathic Association.

Associate Editor	Katherine Becker
President	Charles L. Naylor, D.O.
Executive Director	True B. Eveleth, D.O.
Business Manager	Walter A. Suberg

Committee on A.O.A. Publications—Wesley B. Larsen, D.O., chairman; James H. McCormick, D.O., William B. Carnegie, D.O.

The new Editor

TRUE B. EVELETH, D.O., Executive Director, American Osteopathic Association

Dr. George W. Northup is now the Editor of the American Osteopathic Association. He was named to the office by the Board of Trustees during its annual meeting in Chicago in July, and has assumed his duties with the confidence and support of that body. He is the sixth editor of the Association's publications, and succeeds Dr. Raymond P. Keesecker, who died in April 1960.

Dr. Northup brings to his new office the credentials of service and ability. For almost 15 years, in a comprehensive range of positions in state and national organizations, he has been a cogent and articulate spokesman for the osteopathic profession and for public health.

He has been president of the American Osteopathic Association, of the New Jersey Association of Osteopathic Physicians and Surgeons, and of the Academy of Applied Osteopathy. He has been a member of the A.O.A. House of Delegates and was a trustee from 1954 to 1957. He has just completed his term on the Board as Past President. The state and national committees upon which he has served cover the span of organization. For a number of years, he has been a vital force in the revision of the processes of osteopathic education. In March of this year he was made a director of the National Health Council.

Dr. Northup was born in Syracuse, New York. He received his preosteopathic training at Brothers College and Drew University, graduated from the Philadelphia College of Osteopathy in 1939, and did graduate work there and at Seton Hall University.

He is a life member of the Academy of Applied Osteopathy, and a fellow of the New York Academy of Osteopathy. He is a member of the department of Principles and Technic of the Philadelphia College and of the Theta Psi fraternity. He holds licenses in New Jersey and Pennsylvania.

Dr. Northup will continue residence in Madison, New Jersey, and will carry out his work as Editor there and in Central Office, Chicago.

To his office as Editor Dr. Northup brings the experience of leadership, a native power of expression, and an intense dedication to the osteopathic concept of health care.

The profession at Chicago

At its annual meeting in New York in June, the House of Delegates of the American Medical Association adopted a resolution declaring that the practice of osteopathy is cultism and that therefore voluntary association by M.D.'s with those who practice osteopathy is unethical. This is merely a reiteration of the position long held by the A.M.A.

However, the adoption of the resolution changed the level of authority and methods of application of the rule prohibiting association. State medical societies may now permit their members to associate

voluntarily with osteopathic physicians who do not practice "osteopathy," but who instead practice scientific medicine, by which is meant, medicine as practiced by M.D.'s. That "osteopathy" may indeed be scientific medicine seems to be beyond the comprehension of those who prescribed the new rule.

This move to permit state medical societies to determine their relationship with osteopathic physicians is part of the divide-and-conquer plan of organized medicine.

At its annual meeting in Chicago in July, the House of Delegates of the American Osteopathic Association faced a decision as to its plans for the future. Its unanimous decision was to stand firm on its policy of remaining an independent and distinctive profession and to resist, wherever they appear, attempts to bring about amalgamation with or absorption into the medical profession.

The stand of the delegates was firm, positive, and unequivocal. They were sure that their action was the only right and honorable one, and their only concern was that the members back home whom they represented could be convinced of the dangers confronting them and of the firm measures necessary to combat them. One of these measures was the creation of a backlog of a half-million dollars, to be raised by assessment, to enable the profession to protect the right of the public to have its health care administered by osteopathic physicians, if it so chooses.

This profession has come up the hard way. It has had to believe in itself and its theories in order to live and to grow as a separate profession. It has faced many challenges and surmounted many obstacles, firm in its conviction that it had a contribution to make and a service to offer. In this time of crisis, it has no intention of betraying the trust placed in it by its hundreds of thousands of patients and by the public in general which shows an increasing understanding and appreciation of the contribution to public health being made by the members of the osteopathic profession.

Resolutions of loyalty and support of the declared policies of the profession have been made by many divisional societies and other professional organizations. These and the unanimous actions of the House of Delegates are evidences of a ground swell of renewed interest in the philosophy and the practice of osteopathy. Just as the federal government is taking a firm stand against those forces which would destroy this nation, so the osteopathic profession has reiterated its firm stand and its determination to continue to control its internal affairs and to determine its destiny.

United in a common cause, the American Osteopathic Association and its divisional societies will continue to resist attempts by organized medicine to undermine and weaken the profession by their divide-and-conquer tactics. History is replete with examples of the ultimate success of a minority which carries on its battle with determination, firm in the conviction that it has right on its side, and tireless in its efforts toward its established goals.

Medicine: The art

A doctor's nightmare about his "modern scientific medical practice" might well be peopled by a procession (with apologies to T. S. Eliot[1]) of

5,800,000 complete blood counts
102,000 x-ray films
28,000 electrocardiograms
53,000 urinalyses

I cannot tell how many insurance forms, consultation reports, and monthly statements

13,000 culture specimens
24,000 pathology reports
50,000 blood chemistries
now 55,000 prescription slips
11,000 new drug notices
1,150 specialty journals

marching on and on, phalanx after grim phalanx. The pride he feels at seeing such a well-ordered array is dulled by a vague unease: something, or someone, is absent. Yes, there are some things missing; so he calls out the hospital charts, the reservations for society meetings, the appointment book, and even the income tax forms. But in a final moment of horror he remembers: *There are no patients!*

More than one physician has had such a flash of terrible insight, but most often in a sober waking moment. "Overautomation," he says, rubbing his chin. "Depersonalization." And suddenly office patients seem more like people and less like obesities, hay fevers, back strains, and hypertensions.

This change in viewpoint can be put into words, to a certain extent. We have at hand four books representing attempts in this direction. They are of widely differing types, but they have one thing in common: a return to medicine as an art, with primary emphasis not on the symptoms or even the disease, but on the patient.

The authors of these books are curiously assorted: a British surgeon, K.B.E., F.R.C.S.; an American GP from Texas; a Dutch-American professor of medicine turned director of medicine and medical education; and two British physicians, one a Fellow of Corpus Christi College, Cambridge, and formerly dean of a medical school, and the other a physician to London's Lambeth Hospital. They speak their minds differently, with scholarly ease or vigorous common sense; but the results are surprisingly alike. All have a healthy respect for "the textbooks," and none are writing to oppose or replace the big references. But all feel the need for something more, something human; and all have chosen this method for communicating it.

A basic point made by more than one of these writers is this: Patients respond differently to illnesses. Although no doctor would deny this if he were asked directly, the fact often escapes notice

in the expediencies of daily practice. Paul Williamson,[2] in *Office Diagnosis,* makes both sides of the story clear:

> Variation in response is wide but it, too, stays within the bounds of a general pattern.
>
> Take a curious example: In a baseball game the pitcher throws a beanball—pitched directly at the batter's head. The batter may fall down, he may extend a hand to stop the ball, or he may just lean away from its path. These are different physical responses all in one pattern—that of obvious defense to an obvious threat. The batter will respond also in a mental way. He may, for example, become angry at the pitcher; he may laugh at the pitcher for a stupid move; or he may take the whole matter plegmatically and simply shrug it off.
>
> It has always seemed to me that these general patterns of attack, defense, and psychologic response are far more important than trivial bits of specific information.

A slightly more academic way of saying almost the same thing is found in a new British book by Clark-Kennedy and Bartley:[3]

> The surface of a wall is bound to condition the appearance of anyone's writing on it. Two different surfaces could make the same "hand" look very different; or force two different "hands" into nearly the same pattern. So too with brain (wall) and conscious experience (writing). The mind (psyche) develops on the body (soma) as the result of conscious experience, but this development is conditioned by the physico-chemical machinery of the brain which is part of that body. Thus the same experience may affect two children quite differently: or different experience force two different children into much the same pattern of behaviour.
>
> So, instead of talking about body *and* mind, as if they were entirely separate (when clearly they are not), it is nearer the truth to talk about body *hyphen* mind, which implies and emphasizes their intimate relationship.

From this viewpoint, the natural cause of disease is also understood within different limitations. According to Williamson,[4] the purpose of history taking is "to establish *in the mind of the doctor* the pattern of attack and response." He must determine how a particular disease begins, what avenues of attack are open to the offending agent, and what pattern the attack is likely to follow. "Pathology texts are usually made up of spot descriptions. It is as if one were to describe what a racing car were doing at one precise microsecond during a race." What the doctor needs is a conception of "the behavior of the car during the whole race." He must formulate in his own mind "working pathologies—patterns of disease."

Clark-Kennedy and Bartley[5] give another illustration of this principle of evaluating a disease process when seen at a particular point in its development:

> Organic disease, particularly infective disease, can often be compared very aptly with a battle, for example, an air raid. Just as that was action, say, on London and reaction by London, the two together altering the structure and interfering with the functions of London, so organic disease is often action on and reaction by the body, the two together altering its structure and upsetting its function slowly or suddenly, transiently, permanently or progressively, leading to the symptoms of which the patient comes complaining.

The area of laboratory diagnosis is one of the most obvious places where automation can take the place of thoughtful person-to-person contact, so it is not surprising that these writers on the art of medicine all give special attention to the subject. None denies that the laboratory is important, but all stress its limitations. I. Snapper,[6] in *Bedside Medicine,* uses a striking analogy to caution against thoughtless dependence upon laboratory findings:

> Interesting analogies exist between the pros and cons of the influence of laboratory methods on the development of the practice of medicine and the mechanization of certain non-medical crafts. Until ten years ago, statistics indicated that among all the ways of transportation—by foot, automobile, railroad, ship, plane or horse and buggy—traveling by boat was least dangerous. Only a few years ago the negligible dangers connected with maritime navigation seemed to be practically eradicated by the introduction of radar, which allowed visibility in fog where before no visibility existed. Why, then, in addition to many minor accidents, have three of our greatest ocean liners had very severe collisions in and around the neighborhood of New York harbor in the last few years? The answer is that, unfortunately, the introduction of radar has led to the abolition of a large part of traditional seamanship which made navigation safe. The dangers inherent in the replacement of the time-proven seamanship of the skipper by one or more instruments evidently outweigh the advantages of the introduction of radar. Just as in navigation, in medicine the replacement of classical empirical methods tested in the course of centuries by complete reliance on laboratory methods creates unexpected dangerous errors.

Williamson,[7] in his vigorous way, makes a similar point, stressing again the "continuous concept" of disease:

> Understanding the laboratory and, more particularly, its limitations is a part of the art of medicine. Laboratory tests, in and of themselves, mean precisely nothing. It is only when the result, with all its error and uncertainty, is applied to the living, changing patient that it contributes something to diagnosis. Probably the most frequent diagnostic error is to know how to order laboratory tests without recognizing their limitations. This is so very common that many times we gloss over it.
>
> There are two other points regarding laboratory determinations. First and foremost, the laboratory cannot begin to replace the brain of the physician as a diagnostic tool. We all see mechanistic physicians who rely implicitly on technicians and paper results without ever giving more than a fleeting thought to the patient as a person and to the disease at hand. There is a strong tendency for this dependence to become more and more common in medicine. The skilful diagnostician cannot depend on purely mechanical devices.
>
> Second, most laboratory determinations are only spot checks. They may tell with accuracy what is happening at the moment the test specimen is taken but they only allow inference as to what has happened one minute before or what may happen one minute after. Laboratory determinations are much more valuable when seen in series. Then they reflect body changes and are lifted out of the "spot check" category. Remember the importance of multiple determinations.

The area of therapeutics also comes in for its share of constructive criticism. Perhaps the most caustic remarks are directed at the surgeons, although the principle could apply in almost any phase of medical practice. The writer, Sir Heneage

Ogilvie[8] *(No Miracles Among Friends),* is himself a surgeon:

> Surgeons are a little too apt to treat their art as an entrancing hobby, rather than as an instrument capable of doing great good and unspeakable harm. They say to themselves at the meetings where they congregate, or over drinks when the day's work is done: 'There's a grand new operation for ulcer in the current number of the *Patagonian Medical Journal.* I'll get my registrar to lay on a couple of dozen duodenals and try it out.'
>
> The twenty-four men who are to be 'laid on' to prove or disprove the brain wave of an unknown Patagonian are fellow men with immortal souls, human beings with their sorrows, hopes and fears, with wives and families to support. Life to them is sweet. They come to hospital in the blind faith implanted by the work of generations of honest doctors. They trust us to treat their bodies as we would our own, to tend them with all the skill and care that we know. Each of these men is too important to be treated as one of a series. Each presents a problem that requires long and anxious thought before the right decision is reached and the right advice is given.

Snapper,[9] as his book title indicates, makes a case for practical bedside medicine and even for the "empirical therapeutics," now semiofficially held in dishonor. Like many modern writers, he cites Hippocrates as the paragon of bedside practitioners and pleads for a return to his methods, "reinforced and enriched by the application of modern laboratory techniques."

Snapper also describes the cycles of medical practice, using as an example the study of botany by physicians. At the time when Withering discovered digitalis (by analyzing an herb used by an old woods-woman to cure "incurable" heart disease in a young girl), botany was a regular part of the medical curriculum. Around the beginning of the twentieth century such study was omitted, and the pharmaceutical industry took over where pharmacognosy had left off. By now, however, there has begun to be doubt that synthetic chemical agents will solve all therapeutic problems, and botany is becoming popular again. Botanical expeditions are being launched, "and—shades of Withering—the pharmaceutical industry has enlisted the aid of missionaries to quiz African witch doctors about the plants these magicians use for their miraculous cures." Dr. Snapper sees a similar cycle occurring with regard to "bedside medicine." He forecasts a return to Hippocratic methods of diagnosis and treatment, reinforced but not dominated by "modern" methods. And, he summarizes, "I can only hope on behalf of our patients that we will not have to wait much longer before this reversal will take place."

In the new-old phase of medicine as an art, even dying will become unscientific again. Sir Heneage Ogilvie[10] describes how this ought to be:

> For an old man or woman who is seriously ill but may recover, the best place is usually the hospital. For one who is dying the best place, or at any rate the happiest place, is his own home. Although it will add greatly to his work, to the number of visits he must make for small medical attentions or merely for friendship, the doctor should try to keep the dying man at home, and to encourage his relatives to give him this last solace. For most people the home is associated with the experiences and surroundings that make his personality. The pattern on the wallpaper, the shaft of sunlight coming through the window, the school groups and wedding photographs on the wall, the creak of the door, the postman's knock, the recurring noises of the street outside, all these make a familiar pattern in a mind that is drowsing over the past and wondering about the future. He wants a book, a gramophone record, flowers in the vase that used to stand on his desk, his own red silk handkerchief. They are all at hand. He would miss them in the hospital. He may be very trying, shouting at his attendants, browbeating his family. They must be persuaded to humour him, to let him have his own way. It will not be for long.
>
> One reason that the old man is far happier dying at home is that he is not subjected to the Florence Nightingale tradition that cleanliness is more than godliness, and that neatness is more than kindness. If the family can do some or all of the nursing, so much the better. They know how to humour him, and the service will keep them from fussing and will give them a sense of importance. They should be reminded not to fuss him. He need not be washed very often, nor need his bed be tidy at all times. Mouth washes are more important than face washes, and the occasional rinse with antiseptic lotion will add greatly to his comfort.

What with Williamson[7] advocating such a heretical thing as the therapeutic trial as part of diagnosis (though this is not so unfamiliar in practice as in writing), Ogilvie[8] speaking out for considering the individual to the detriment of "experimental progress," and Snapper[9] pleading for emphasis on Hippocratic empirical medicine with modern laboratory methods as only complements, it may seem that medicine is traveling full speed in reverse. There seems only one worse thing left to say. And Clark-Kennedy and Bartley[5] have said it: "The concept of a *disease* is an abstraction. The *patient* is the reality." However, they go on to say something we have known all the time, but something that could lead into specificism if it became the point of concentration:

> Why then, if diseases do not exist, do we give them names, and talk about them just as if they did? . . . The answer is clear. Because we can in fact talk about them like that, just as we can still talk about air raids and recall a typical one, and in respect of disease must talk about them like that in order to exchange information among ourselves, learn and maintain a common front of knowledge from which to advance into the unknown.

1. Eliot, T. S.: Coriolan: I. Triumphal march, in Complete poems and plays, 1909-1950. Harcourt, Brace & Co., New York, 1952, p. 86.
2. Williamson, P.: Office diagnosis. W. B. Saunders Co., Philadelphia, 1960, p. 2.
3. Clark-Kennedy, A. E., and Bartley, C. W.: Medicine as art and science. J. B. Lippincott Co., Philadelphia, 1960, pp. 3-4.
4. Williamson, P.: *Op. cit.,* ref. 2, p. 1.
5. Clark-Kennedy, A. E., and Bartley, C. W.: *Op. cit.,* ref. 3, pp. 17-18.
6. Snapper, I.: Bedside medicine. Grune & Stratton, New York 1960, p. x.
7. Williamson, P.: *Op. cit.,* ref. 2, p. 3.
8. Ogilvie, H.: No miracles among friends. Charles C Thomas, Springfield, Ill., 1960, pp. 152-153.
9. Snapper, I.: *Op. cit.,* ref. 6, pp. ix-xi.
10. Ogilvie, H.: *Op. cit.,* ref. 8, pp. 168-169.

Conference on health care economics 1009
Osteopathic Educational Grants for 1961-62 total $52,900 1012
Council on Federal Health Programs 1013

A.O.A. ACTIVITIES

Conference on health care economics

► Two days of lectures, panels, and spirited discussion from the floor marked the Conference on Health Insurance and Medical Care Plans held in the Drake Hotel, Chicago, July 7 and 8. Sponsored by the American Osteopathic Association, the meeting brought together authorities in the field of medical care economics, osteopathic physicians, and secretaries of divisional societies. It immediately preceded the annual meeting of the Association's House of Delegates.

The purpose of the Conference was to clarify, for the profession, present-day objectives, developments, and problems that are now an integral part of health care. Its general chairman was Theodore F. Classen, D.O., Warrensville Heights, Ohio, who heads the A.O.A. Committee on Medical Care Plans.

Under Secretary Nestingen • One of an impressive slate of speakers was Ivan Nestingen, Under Secretary of the United States Department of Health, Education, and Welfare. Mr. Nestingen addressed more than 150 attendants at the conference dinner held on Friday evening. He spoke on "The Nation's Health Needs and Plans," with particular attention to the health problem of the aging.

Richard L. Wysong, Ph.D., of the faculty of Central Michigan University, Mount Pleasant, was conference moderator and its first speaker. As a historian, he traced factors back of present developments in health care, and thus set the stage for both the formal ad-

Informal discussions during Conference recess—Behind the microphones, from left: J. Myron Auld, D.O., Kansas City, Missouri; speakers, Jay C. Ketchum, Chicago, insurance executive, and Richard L. Wysong, Ph.D., Central Michigan University faculty member. Far right, the Conference's general chairman, Theodore F. Classen, D.O., Warrensville Heights, Ohio.

dresses and open discussions that followed each address.

Other speakers • The program also included Jay C. Ketchum, executive vice president of Health Services, Incorporated, and Medical Indemnity of America, Chicago; Mortimer T. Enright, administrative assistant, A.O.A.; J. F. Follman, Jr., director of information and research, Health Insurance Association of America, New York City; George W. Lane, Jr., assistant vice president, Metropolitan Life Insurance Company, New York City; Walter H. Uphoff, president, Group Health Plan, Incorporated, St. Paul, Minnesota; Charles L. Massie, president, Federal Postal Hospital Association, Kansas City, Missouri, and Alexander Levitt, D.O., Brooklyn, delegate to the White House Conference on Aging.

Panel moderators were Dr. Robert D. Anderson, Philadelphia, chairman of the A.O.A. Bureau of Public and Industrial Health, Drs. Classen, Vernon H. Casner, Kirksville, and members of the Medical Care Plans Committee: Drs. W. Clemens Andreen, Wyandotte, Michigan; Alfred A. Ferris, Saginaw, Michigan; and James H. McCormick, Elkhart, Indiana.

Speakers visit between sessions—From left, Charles L. Massie, Federal Postal Hospital Association, Kansas City; Robert D. Anderson, D.O., chairman, A.O.A. Bureau of Public and Industrial Health, Philadelphia; and Walter H. Uphoff, president, Group Health Plan, Incorporated, St. Paul.

Delegates confer—A.O.A. delegates to the White House Conference on Aging discuss report to the Conference on Health Insurance and Medical Care plans. They are, from left, President-Elect Charles L. Naylor, Ravenna, Ohio; President Roy J. Harvey, Midland, Michigan; and Dr. Alexander Levitt, Brooklyn, who made the report.

Guests at Conference dinner—From left, Dr. Richard E. Eby, Pomona, California; Dr. and Mrs. William Baldwin, Jr., York, Pennsylvania; and Drs. J. Donald Sheets, Detroit, and E. R. Komarek, St. Cloud, Minnesota.

Conference speakers said:

Mr. Nestingen

Everyone agrees that adequate health care should be available to all people, where and when and how they need it.—Ivan A. Nestingen, under secretary, U.S. Department of Health, Education, and Welfare, Washington, D.C.

Now, in America, in a country as large as this, which is made up of large cities, small towns, and rural areas, obviously there is no one pattern of health insurance or medical care plan which would be appropriate and effective for all situations.—Walter H. Uphoff, president, Group Health Plan, Incorporated, St. Paul, Minnesota.

Mr. Follman

Those who provide medical care in the United States, the various types of voluntary health insurance mechanisms, and the many voluntary agencies all are engaged today in what is essentially a common endeavor. —J. F. Follman, Jr., director of information and research, Division of the Health Insurance Association of America, New York City.

Dr. Wysong

The long processes of development in the fields of medicine and surgery have arrived at a state which makes it possible today to provide the average man with health and happiness in such generous measure that no other culture at no other time could even remotely approach our fortunate lot. It is unreasonable to suppose that the public won't insist that a way be found to make this care available to the average man. The price for improvement of life which has had some part in the causes of change makes this inevitable in a democracy. Mr. Everyman will not be denied.—Richard L. Wysong, Ph.D., professor of history, Central Michigan University, Mount Pleasant, Michigan.

Mr. Ketchum

It is certain that only by acceptance of responsibility in voluntary prepayment by all the interested parties—hospitals, medicine, the public, the plans, and insurance—are we going to maintain "freedom of choice" in medical care.—Jay C. Ketchum, executive vice president, Health Services, Incorporated, and Medical Indemnity of America, Incorporated, Chicago.

The American Osteopathic Association should be highly commended for the steps it is taking to work hand in hand with health insurance plans, in matters of serious concern to the American people.—Charles L. Massie, president, Federal Postal Hospital Association, Kansas City, Missouri.

Mr. Enright

There is no denying that major medical expense insurance is a powerful mechanism. It affords broad coverage of an unallocated type that does not impose dollar limits in the amount of benefit payable for particular types of care or treatment.—George W. Lane, Jr., assistant vice president, Group Insurance, Metropolitan Life Insurance Company, New York City.

The long-range purpose of this Conference is to set up channels of communication between two groups of people: those who have to do with the formation of health insurance and medical care plans, and individual osteopathic physicians who have experience with the plans in operation. —Mortimer T. Enright, administrative assistant, A.O.A.

Osteopathic educational grants for 1961-62 total $52,900

▶ Grants for osteopathic education totaling $52,900 were announced during the annual meetings of the American Osteopathic Association, held in Chicago July 5 to 12. The grants will benefit graduate and undergraduate students of osteopathy during the coming year.

Dr. John W. Mulford, Cincinnati, a past president of the A.O.A., is chairman of the profession's two principal committees on educational grants, which so far this year have awarded funds from sixteen pharmaceutical and equipment companies, and from the Russell C. McCaughan Educational Fund.

1960-61 Committees meet • The grants were awarded in the annual meeting of the Committee on Mead Johnson Grants, held in Evansville, Indiana, in late May, and in the June and July meetings of the Committee on Educational Grants. Serving with Dr. Mulford on the Mead Johnson committee, now in its seventh year, were Dr. James H. McCormick, Elkhart, Indiana; Dr. Paul van B. Allen, Indianapolis; and committee secretary, Lawrence W. Mills, Chicago. Members of the Educational Grants Committee, in addition to Dr. Mulford, were Drs. George W. Northup, Livingston, New Jersey, representing the A.O.A. Board of Trustees; Robert A. Kistner, dean of the Chicago College of Osteopathy, representing the American Association of Osteopathic Colleges, and Mr. Mills as secretary.

The Mead Johnson grants, for $1,000 each, were awarded for graduate work in the fields of obstetrics and gynecology, pediatrics, and internal medicine. The recipients, all recent graduates of osteopathic colleges, are scheduled for training in the Chicago, Kirksville, and Philadelphia colleges of osteopathy, in Doctors Hospital, Columbus, Ohio, and the Detroit Osteopathic Hospital.

Undergraduate awards • The McCaughan and Pfizer Foundation scholarships were awarded to osteopathic undergraduates. Six awards of $400 each were made from the McCaughan fund and six of $1,000 each from the Pfizer fund. One scholarship for $100 was granted to a student from Florida by the Surgical Equipment Company, Tampa.

Pharmaceutical grants • The awards for graduate study and for special programs on osteopathic

Right, W. D. Snively, Jr., M.D., executive vice president of Mead Johnson and Company, under whom the company's grants program for A.O.A. graduates originated, and Dr. L. F. Rittelmeyer, Jr., who has succeeded Dr. Snively as vice president and medical director.

Below, Committee on Educational Grants meets—From left, Dr. R. A. Kistner, Chicago; Dr. George W. Northup, Livingston, New Jersey; Chairman John W. Mulford, Cincinnati; Luise van Hook, Chicago, committee consultant, and Lawrence W. Mills, Chicago, secretary.

education were made by these pharmaceutical companies: Abbott Laboratories Fund, $2,000; Ayerst Laboratories, $2,500; Burroughs Wellcome and Company, $1,500; Ciba Pharmaceutical Products, $400; Eisele and Company, $250; Eli Lilly and Company, $2,500; Merck Company Foundation, $5,000; National Drug Company, $250; A. H. Robins Company, $1,000; E. R. Squibb and Sons, $2,500; Lederle Laboratories, $2,500; The Upjohn Company, $10,000; and Wyeth Laboratories, $5,000.

The listing of award recipients will be published in the September issue of D.O.

Know your Association!

The annual reports of the chairmen of your national organization will be carried in the next three issues of THE JOURNAL OF THE A.O.A.

Watch for them!

2 Missouri D.O.s to serve on governor's committee

► Dr. Raymond W. Hanna, Independence, and Dr. Hugh S. Pickering, St. Louis, have been appointed by Missouri's Governor John M. Dalton as members of his newly named Governor's Medical Disaster Advisory Committee for Civil Defense. Five other physicians and one representative of each of the state's paramedical groups have also been appointed.

Dr. Hanna is chairman of the Bureau of Disaster Medical Care, appointed during the 1960 A.O.A. Convention in Kansas City.

COUNCIL ON FEDERAL HEALTH PROGRAMS

HEW announces grants to assess radiation exposure

► The following announcement has been received from the Division of Radiological Health of the Public Health Service of the U. S. Department of Health, Education, and Welfare:

In view of the rapid expansion which is forecast in the use of nuclear energy, x-rays, and other sources of radiation, a greatly expanded program for research grants in the field of radiological health has been developed. These grants are offered to support research by individuals, universities, hospitals, laboratories, and other public or private institutions in the assessment and control of man-made and natural radiation exposures to the individual, no matter how the separate components may originate. The knowledge and skills of many professional disciplines and specialties—physicians, engineers, physicists, chemists, educators, statisticians among them—are needed to find answers to the many challenging questions in radiological health.

Basic studies • Research proposals should contribute to the determination of the extent and character of the radiation problem as well as the mechanisms by which radiation produces damage. Studies aimed at the elucidation of the radiation damage "cause and effect" relationship are essential if low-level and long-term radiation exposure effects are to be accurately assessed and general control programs organized. Therefore, basic studies relating to critical body organs and systems, preferred metabolic pathways for specific radioactive contaminants, and an understanding of the radiosensitizing and modifying effects of various materials are encouraged.

Broad epidemiological studies aimed at a scientific evaluation of the long-term effects such as aging, congenital malformations, genetic effects, behavioral patterns, and cancer induction are also of primary concern. Field studies of the movement of radioactive contaminants in biota and human food chains are of special interest, since we know the physical environment may be greatly altered by biological activity, as for example, the concentration of water-borne radionuclides in micro-organisms and fish.

Program necessities • Purely physical studies, such as chemical mechanisms in radiation chemistry, the design of equipment and the development of techniques to accurately assess or reduce the population dosages are mandatory for a successful research program.

Studies aimed at directing scientific findings toward control devices or procedures are necessary in a "total view" of man's ecological system, as are studies that attempt

Address communications to the A.O.A. Council on Federal Health Programs 1757 K Street, N.W. Washington, D.C.

to assess the relationship between health hazards created and possible benefits derived by radiation usage. The determination of the consequences of radiation exposure for present and future generations will require intensive investigation.

For further information • For information and/or application forms, please contact: Dr. Paul F. Hahn, Chief, Office of Extramural Grants, Division of Radiological Health, U. S. Public Health Service, Washington 25, D. C.

Dr. Goddard reappointed FAA Civil Air Surgeon

▶ Dr. James L. Goddard will continue to serve as the Federal Aviation Agency's Civil Air Surgeon for an additional 2 years, under an agreement made with the U. S. Public Health Service at the request of FAA Administrator N. E. Halaby. Dr. Goddard, the Agency's first Civil Air Surgeon, will head the Agency's Aviation Medicine Service (formerly Bureau of Aviation Medicine).

To recommend medical standards • As Civil Air Surgeon and head of the Aviation Medicine Service, Dr. Goddard is concerned with the mental and physical fitness of airmen and air traffic controllers. He develops and recommends FAA's medical standards for airmen, controllers, and others concerned with aviation safety, and conducts aviation medical research into the physiologic and psychologic limitations of the human body that affect man in flight.

Dr. Stanley R. Mohler has been named Director of the FAA Civil Aeromedical Research Institute in Norman, Oklahoma. He succeeds Dr. Hilliard D. Estes, who has been appointed Chief of the Aviation Medicine Service's Environmental Health Division at FAA Headquarters, Washington, D. C.

Aeromedical research • The Institute has been established to carry out research to meet both existing and anticipated aeromedical problems to promote air safety. Dr. Mohler will have the over-all responsibility for the human factors research conducted there.

Dr. Mohler transfers to FAA from the National Institutes of Health, where has has been a commissioned officer in the U. S. Public Health Service for the past 4 years.

Reappointed—James L. Goddard, M.D., again named as FAA Civil Air Surgeon, as he addressed the osteopathic profession's first seminar on aviation medicine, held last winter in Des Moines, Iowa.

Bills in Congress

▶ H.R. 4930 Mr. Powell of New York. Amends National Defense Education Act to provide loans specifically for medical and dental students and in certain hospitals. Defines medical school as one which provides training leading to the degree of doctor of medicine or osteopathy, and defines medical degree as the degree of doctor of medicine or doctor of osteopathy. Provides: "Loan commitments shall be made to applicants by the Secretary on the basis of their relative ability to pursue successfully the study and practice of medicine, osteopathy, or dentistry, as the case may be, and their relative need for a loan in order to pursue studies leading to a medical or dental degree or serve as an intern, as the case may be."

H.R. 4936 Mr. Roberts of Alabama. Rehabilitation Act of 1961.

H.R. 4971 Mr. Perkins of Kentucky. Youth Conservation Act of 1961.

H.R. 4976 Mr. Barry of New York. Provides income tax deduction from gross income for tuition expenses paid by taxpayer for the education of himself, his spouse, or any of his dependents, at a nonprofit tax-exempt educational institution.

H.R. 4978 Mrs. Church of Illinois. Educational Opportunities Act of 1961. Establishes National Scholarship Board.

H.R. 4998 Mr. Harris of Arkansas. Community Health Services and Facilities Act of 1961. Allows for a period of three years an annual increase from $10 million to $20 million in the limit on expenditures for Federal grants-in-aid to the States for the construction of nursing homes under the Hill-Burton Act. Authorizes new program for five years at up to $10 million annually of special project grants to States, local communities, and nonprofit organizations for studies, experiments, and demonstrations of new or improved methods of providing health services outside hospitals, particularly for chronically ill or aged persons. Reported to House June 27, 1961.

H.R. 4999 Mr. Harris of Arkansas. Health Professions Educational Assistance Act of 1961. Authorizes grants for construction of medical, dental, osteopathic, and public health teaching facilities, and scholarship grants to schools of medicine, osteopathy and dentistry.

H.R. 5030 Mr. Monagan of Connecticut. Establishes a United States Commission on the Aging and Aged.

H.R. 5099 Mr. Rogers of Colorado. Establishes a program of Federal matching grants for the construction of television facilities to be used for educational purposes.

H.R. 5110 Mr. Beckworth of Texas. Makes educational benefits available to all veterans whether or not they serve during a period of war or of armed hostilities.

H.R. 5222 Mr. Robison of New

York. Amends Internal Revenue Code to provide that the cost of all medicine and drugs for the taxpayer and his spouse, rather than only the excess over 1 per cent of adjusted gross income as otherwise provided, may be included in computing the medical expense deduction where such taxpayer or spouse is 65 or over.

H.R. 5233 Mr. Teague of Texas. Provides for a voluntary program of medical insurance for certain disabled veterans, under a health benefits plan established under the Federal Employees Health Benefits Act of 1959.

H.R. 5253 Mr. Boggs of Louisiana. To exempt nonprofit hospitals from certain excise taxes.

H. R. 5266 Mrs. Green of Oregon. College Academic Facilities and Scholarship Act.

H.R. 5285 Mr. Zelenko of New York. Authorizes grants for improving domestic agricultural migratory workers' health services and conditions.

H.R. 5297 Mr. Holifield of California. Provides more liberal definition of "disability" for purposes of entitlement to Social Security insurance benefits and the disability "freeze."

H.R. 5405 Mr. Halpern of New York. To provide for grants-in-aid to the States for the treatment of narcotic drug addicts in closed institutions.

H.R. 5498 Mr. Van Zandt of Pennsylvania. Provides a further period for presuming service connection in the case of war veterans suffering from chronic functional psychosis.

H.R. 5523 Mr. Chamberlain of Michigan. To provide a tax incentive for the employment of physically handicapped workers.

H.R. 5550 Mr. Taylor of North Carolina. Federal Student Loan Guaranty Act of 1961.

H.R. 5552 Mr. Whalley of Pennsylvania. Provides an additional income tax exemption of up to $1,000 for a taxpayer, spouse or dependent who is a student at an institution of higher learning.

H.R. 5634 Mr. Ryan of New York. To remove all limitations upon the amount of the deduction allowed a taxpayer for medical, dental, and related expenses.

H.R. 5673 Mr. Kearns of Pennsylvania. To amend the Internal Revenue Code to provide funds for educational purposes by providing increased incentives for private giving through the allowance of a tax credit for charitable contributions to educational institutions, and to allow a deduction for tuition and other expenses incurred by the taxpayer or his spouse or dependent at an institution of higher education.

H.R. 5682 Mr. Staggers of West Virginia. To authorize a five-year program of grants and scholarships for collegiate education in the field of nursing.

H.R. 5702 Mr. Fino of New York. To extend benefits under the Federal Employees Compensation Act to certain individuals injured while engaged in Federal civil defense activities during World War II.

H.R. 5706 Mr. Fountain of North Carolina. Amends Public Health Service Act to enable Public Health Service through grants to assist State and local community programs of cancer control.

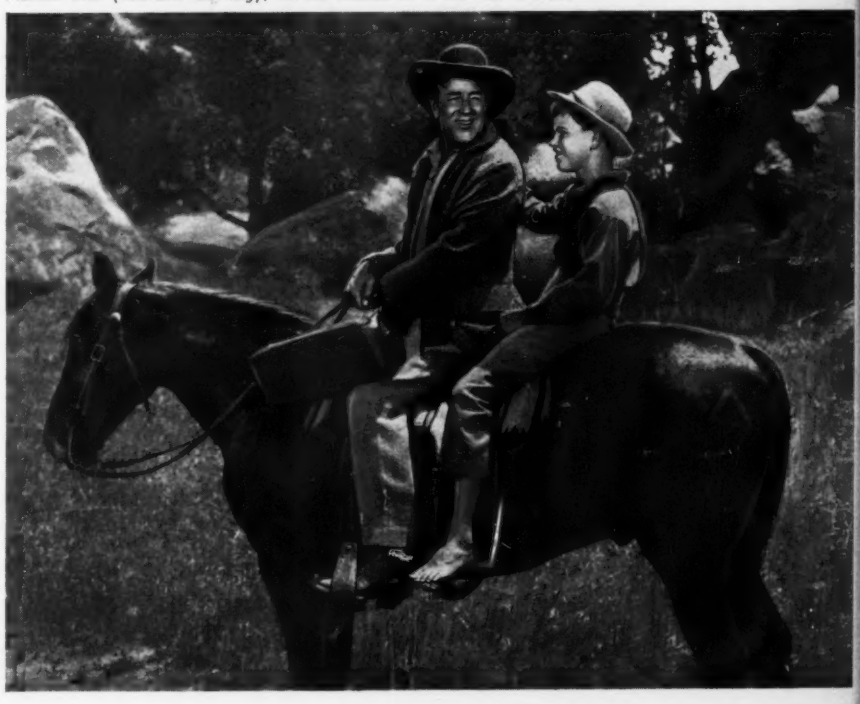
H.R. 5717 Mr. Rains of Alabama. Amends Internal Revenue Code relating to exemptions from admissions taxes.

H.R. 5887 Mr. Rhodes of Pennsylvania. To assist voluntary nonprofit associations offering prepaid health service programs to secure necessary facilities and equipment through long-term interest-bearing loans.

H.R. 5904 Mr. Monagan of Connecticut. Advisory Council on Education Act.

H.R. 5933 Mr. Farbstein of New York. Amends veterans laws with respect to the application of presumption in cases of service-connected tuberculosis.

From "American Doctor"—Young Andrew Still (Craig Marshall) rides with his father, Abram Still (Richard Cutting), on his rounds as a frontier doctor.



H.R. 5936 Mr. Halpern of New York. Amends veterans laws to provide vocational rehabilitation, education and training and loan guaranty benefits for veterans of service after January 31, 1955.

H.R. 6000 Mr. Everett of Tennessee. Amends Medicare Act to provide medical care for individuals who have completed 20 years of Federal service and at least 8 years of active duty.

H.R. 6027 Mr. Mills of Arkansas. Social Security Amendments of 1961. Permits men to retire at age 62, with reduced benefits; raises the Federal share in expenditures for medical care for old age assistance; increases minimum OASI benefits; increases the rate of Social Security tax by ¼ of 1 per cent of taxable payrolls and wages, effective January 1, 1962. For self-employed persons the increase is 3/16 of 1 per cent, rounded to the nearest 10th. Public Law 87-64, approved June 30, 1961.

H.R. 6138 Mr. Monagan of Connecticut. To provide for the establishment, under the National Science Foundation, of a National Science Academy.

H.R. 6181 Mr. Gubser of California. Old Age Medicare Health Benefits Act of 1961.

H.R. 6188 Mr. Gubser of California. To amend the Social Security Act to provide that disability determination (for purposes of disability insurance benefits and the disability "freeze") shall hereafter be made by or under the direction of the Secretary of Health, Education, and Welfare rather than by State agencies.

H.R. 6189 Mr. Gubser of California. Amends Internal Revenue Code to provide that amounts paid for the medical and dental care of children who have not attained the age of six shall be deductible without regard to limitations otherwise imposed.

H.R. 6245 Mr. Celler of New York. Drug Industry Antitrust Act.

Attention, counselors!
Order "Opportunities in Osteopathy" by
Lawrence W. Mills from
Guidance Manuals, Inc.,
212 48th Street
Bayside, New York
Price $1.00

H.R. 6310 Mr. Lipscomb of California. Provides an additional income tax exemption for a taxpayer or spouse who has had a laryngectomy.

H.R. 6348 Mr. Anfuso of New York. Scientific Research Act of 1961.

H.R. 6355 Mr. Dague of Pennsylvania. Provides that the Administrator of the Federal Aviation Agency shall not deny applications for private pilot certificate solely because of a past physical defect or disease if a certification of complete recovery therefrom is made by a competent licensed physician.

H.R. 6412 Mr. Keogh of New York. To provide certain exemptions from Federal excise taxes for nonprofit organizations for the blind which are now provided for nonprofit educational organizations.

H.R. 6416 Mr. McVey of Kansas. Amends Internal Revenue Code to provide that blood donations shall be considered as charitable contributions deductible from gross income.

H.R. 6417 Mr. George P. Miller of California. To provide for regulations governing the physical qualification of merchant mariners for signing articles for service on United States merchant vessels.

H.R. 6440 Mrs. Hansen of Washington. To provide for a method of payment of indirect costs of research and development contracted by the Federal government at universities, colleges, and other educational institutions.

H.R. 6447 Mr. Halpern of New York. College Academic Facilities and Scholarship Act.

H.R. 6471 Mr. Dingell of Michigan. Amends Federal Trade Commission Act to provide for certain disclosures in prescription drug advertisements.

H.R. 6483 Mr. Green of Oregon. College Academic Facilities and Scholarship Act.

H.R. 6521 Mr. Anfuso of New York. Narcotic Addict Hospital Facilities Act.

H.R. 6774 Mr. Bailey of West Virginia. To improve and extend the National Defense Education Act.

H.R. 6984 Mrs. Hansen of Washington. To provide for a method of payment of indirect costs of research and development contracted by the Federal Government at universities, colleges and other educational institutions.

H.R. 7006 Mr. Derwinski of Illinois. Amends National Defense Education Act to provide for cancellation of student loans for service as a teacher in a private school as well as for such service in public schools.

H.R. 7105 Mr. Quie of Minnesota. College Academic Facilities and Undergraduate Student Financial Assistance Act.

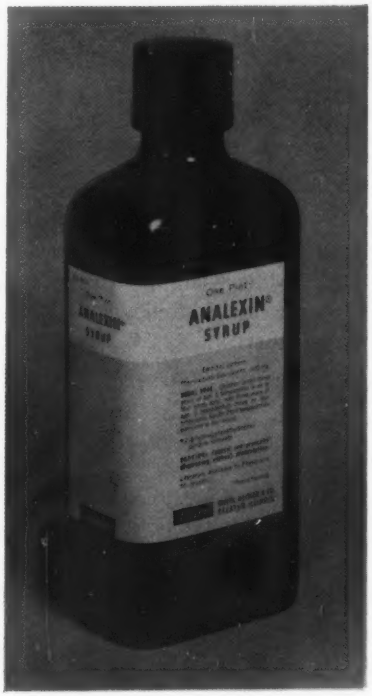
H.R. 7035 Mr. Fogarty of Rhode Island. Departments of Labor, and Health Education and Welfare Appropriation Act, 1962. Passed House May 17, 1961.

H.R. 7215 Mrs. Green of Oregon. College Academic Facilities and Scholarship Act. Reported to House May 26, 1961.

H.R. 7294 Mr. Sibal of Connecticut. Amends Internal Code with respect to income tax treatment of certain contributions to nonprofit medical research organizations and to provide exemptions from certain excise taxes for such organizations.

This section is published monthly to inform the practicing physician about new drug products and medical equipment made available on the market. It is a reference section prepared by THE JOURNAL *from descriptive material furnished by ethical manufacturers. The American Osteopathic Association does not necessarily advocate the use of these products nor disapprove any product not included. The purpose of the section is to provide trustworthy information in a convenient form.*

PRODUCT NEWS



ANALEXIN® SYRUP

Chemistry • Each 5 cc. of Analexin Syrup contains 100 mg. Phenyramidol Salicylate, 2-(betahydroxyphenethylamino)-pyridine hydroxide, in an emerald-green, mint-flavored syrup.

Pharmacodynamics • Analexin Syrup combines the antipyretic and anti-inflammatory action of salicylate with the analgesic and muscle relaxant action of Phenyramidol. The analgesic action is said to be within the range of codeine. Analexin relieves pain by raising the pain threshold and by selectively depressing subcortical and polysynaptic transmission (interneuronal blockade). The use of a single agent that produces two distinct but simultaneous physiologic responses is advantageous for the relief of the total pain experience.

Toxicology • The infrequent occurrence of gastrointestinal irritation, mild nausea, and epigastric distress, and of pruritis with and without rash, has been noted; the effects subside when dosage is reduced or discontinued. Centrally induced side effects such as sedation and euphoria do not occur with Analexin Syrup.

Indications • Analaxin Syrup is especially effective in relieving the pain of otitis media, teething, myositis, muscular rheumatism, toothache, neuralgia, strains and sprains, spastic conditions, and injuries. It is also useful for relieving the skeletal muscle spasm associated with a variety of spastic conditions, including certain forms of cerebral maldevelopment, cerebral palsy, and myositis.

Contraindications • Analexin Syrup should not be administered to persons known to be sensitive or intolerant to salicylates.

Dosage schedule • For children under 3 years old, the dose is 1 teaspoonful three or four times daily; ages 3 to 12, 2 teaspoonsfuls three or four times daily. For adults the dose is 2 teaspoonfuls every 1 to 4 hours.

How supplied • Analexin Syrup is available in bottles of 1 pint.

Manufacturer • Irwin, Neisler & Co., P.O. Box 110, Decatur, Illinois.

HALDRONE™

Chemistry • Haldrone is paramethasone acetate, which has the formula 6*a*-fluoro-16*a*-methylprednisolone 21-acetate. It is soluble in alcohol and acetone and slightly soluble in water at 16 mcg. per ml. This new steroid is distinguished from prednisolone acetate by the presence of two activity-enhancing groupings, 6*a*-fluoro and 16*a*-methyl.

Pharmacodynamics • Haldrone provides a predictable anti-inflammatory effect with a low incidence of untoward reactions. In ACTH suppression tests, it appears to be about nine times as potent as hydrocortisone. Extensive, long-term clinical metabolic studies have shown that at recommended dosage levels Haldrone has little effect on electrolyte metabolism. Sodium retention is unlikely, and on average maintenance dosage there are only minimal changes in sodium and potassium excretion. With regard to other metabolic actions and side effects, Haldrone compares favorably with other available corticosteroids.

Toxicology • Haldrone therapy is seldom accompanied by edema. Electrolyte abnormalities are unlikely. The reported side effects are those encountered with other corticosteroids: rounding of the face, ecchymosis, insomnia, weight gain, hypertrichosis, thinning of the skin, peptic ulcer, infections, and increased appetite. In prolonged treatment at suppressive dosage, the features of Cushing's syndrome may appear.

Indications • Haldrone is indicated for collagen diseases, allergic diseases, dermatologic diseases, hematologic diseases, and such disorders as nephrotic syndrome, gout, ulcerative colitis, adrenogenital syndrome, sarcoidosis, bursitis, pulmonary emphysema, and regional ileitis.

Contraindications • The usual contraindications to corticosteroid therapy apply to Haldrone. Except in certain life-threatening conditions, it should not be used in cases of active or suspected tuberculosis, active peptic ulcer, psychoses, or herpes simplex of the eye. It should be used with caution in patients with diabetes mellitus, infectious diseases, congestive heart failure, osteoporosis, emotional lability, diverticulitis, or thrombophlebitis. If the drug is used during pregnancy, the possibility of adrenal insufficiency in the newborn or in the

mother at the time of delivery should be considered. Prolonged corticosteroid therapy in children is hazardous because of growth suppression or the risk of serious bacterial or viral infections, which are often masked and refractory to treatment.

Dosage schedule • Dosage should be based on severity, prognosis, and duration of a given illness. As with other steroid agents, dosage should be highly individualized. In chronic conditions such as rheumatoid arthritis, dosage is started at 6 to 8 mg. per day in three or four doses. In severe conditions the initial dosage ranges from 6 to 12 mg. per day. When the desired response has been obtained, the dosage is decreased by 0.5 to 1 mg. every 3 to 5 days until a satisfactory maintenance level is reached. When patients are transferred from other corticosteroids to Haldrone, it should be remembered that 2 mg. Haldrone approximates 25 mg. cortisone, 20 mg. hydrocortisone, 5 mg. prednisone or prednisolone, 4 mg. triamcinolone or 6-methylprednisolone, and 0.75 mg. dexamethasone.

How supplied • Haldrone is available in 1-mg. tablets (yellow, scored) and 2-mg. tablets (orange, scored), in bottles of 30, 100, and 500.

Manufacturer • Eli Lilly and Company, Indianapolis 6, Indiana.

References • Edwards, J. A., and others, Proc. Chem. Soc., p. 87, 1959. Edwards, J. A., Ringold, H. J., and Djerassi, C., J. Am. Chem. Soc. 82:2318, 1960. Reports of clinical investigations, Lilly Research Laboratories.

100 TABLETS
AMRIL
100 TABLETS
Each Tablet Contains:
Acetylcarbromal . . . 200 mg.
(Warning: May be habit forming)
Mephenesin . . . . 150 mg.
Reserpine . . . . . 0.05 mg.
Average Dose:
As a sedative, one tablet 2 or 3 times daily.
For sleep, 2 tablets before retiring.
Literature available to physicians.
CAUTION: Federal law prohibits dispensing without prescription.
KEEP OUT OF REACH OF CHILDREN
AMFRE-GRANT, Inc., Brooklyn 26, N. Y.

AMRIL TABLETS™

Chemistry • Amril is a combination of three sedative agents, acetylcarbromal, mephenesin, and reserpine.

Pharmacodynamics • Amril provides simultaneous three-level sedation in complex cases involving anxiety, hyperexcitability, and emotional disturbance. Acetylcarbromal works rapidly in the cortical area; mephenesin affects the motor centers of the brain to produce muscular relaxation; reserpine acts as a tranquilizer, apparently operating in the vicinity of the hypothalamus. The compound is reported to induce relaxation without drowsiness; however, peaceful sleep is facilitated by the alleviation of mental strain and muscular tension. The wide range of activity of Amril is derived not from high potency but from the overlapping effects of its three components working on three levels of the central nervous system. Effects of the medication are noted within an hour after initial administration.

Absorption; fate; excretion • All ingredients in Amril Tablets are easily absorbed through the gastrointestinal tract. Acetylcarbromal is excreted in the urine; its fate is unknown. Mephenesin is oxidized within the body. The fate of reserpine is unknown.

Toxicology • Amril has been found safe for general administration if prescribed in the suggested dose and under medical supervision. The incidence of side effects is low; the reactions reported include heartburn, nausea, vomiting, diarrhea, flatulence, and eructation. These reactions disappeared when medication was discontinued. While no "hangover," mental sluggishness, or memory defects have been observed, drowsiness may occur at high dosage levels. Skin reactions may occur in allergic persons. The side effects of reserpine are known to be drowsiness, nasal congestion, diarrhea, increased dreaming, and increased gastric secretion; these effects have been reported to be reversible and to disappear when medication is stopped.

Indications • Amril is useful as a daytime sedative to reduce tension in patients who show signs of anxiety, nervousness, hyperexcitability, and emotional upset, and to induce sleep in cases of insomnia.

Contraindications • Amril should be used with caution in patients with peptic ulcer or other gastrointestinal disturbances.

Dosage schedule • As a daytime sedative, the usual dose is 1 tablet two or three times daily; for sleep, 2 tablets before retiring.

How supplied • Amril is supplied in boxes of 50 and 100 tablets in cellophane strips. Each two-layer tablet contains 200 mg. acetylcarbromal (warning: may be habit-forming), 150 mg. mephenesin, and 0.05 mg. reserpine.

Manufacturer • Amfre-Grant, Inc., 924 Rogers Avenue, Brooklyn 26, New York.

METHOTREXATE

Chemistry • Methotrexate is a folic-acid antagonist closely related to aminopterin but less toxic.

Pharmacodynamics • It is reasoned that antagonists to folic acid might be able to block or inhibit the blood cell activity of naturally occurring folic acid in leukemia patients and thus slow down the spread of the disease. In theory the body cell would be tricked into absorbing the antagonist because it is chemically so similar to folic acid, a member of the B-vitamin group. Once absorbed, however, the antagonist would provide no nourishment and the cell would starve. The most successful of the first antagonists was aminopterin, which was effective against acute leukemia; this substance was highly toxic, however, since it exerted its antimetabolite effect on normal cells as well as cancer cells. Methotrexate, developed in 1948, was found to be as active as the earlier drug but less toxic.

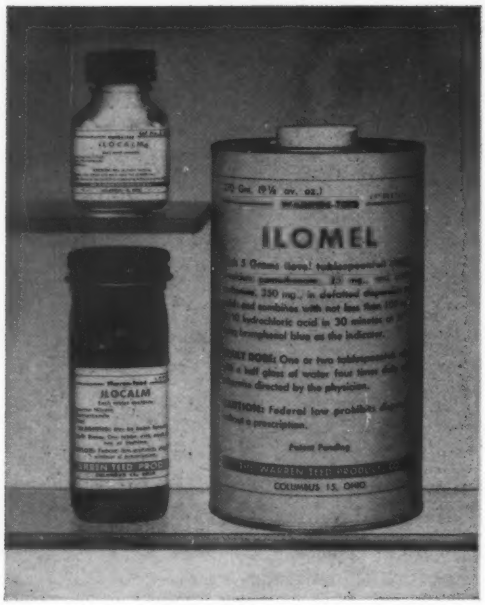
Toxicology • The toxicity of this folic-acid antagonist lies in its possible antimetabolite effect on normal cells. The effect may be offset to some extent, however, by the simultaneous administration of a specific antidote (Leucovorin), developed for this use by the manufacturers of Methotrexate.

Indications • The main use for Methotrexate has been in acute leukemia and related conditions. However, in recent years the drug has been used against solid malignant tumors in various parts of the body. Five-year remissions have been reported in some cases of the relatively rare cancer, choriocarcinoma.

Administration • For children with leukemia, the drug is administered orally several times a week. In cases of solid malignant tumor, one method is to administer massive doses of Methotrexate to the tumor site while administering systemically the specific antidote to Methotrexate.

Manufacturer • Lederle Laboratories, a Division of American Cyanamid Company, Pearl River, New York.

References • Hertz, R., and others, J. Am. M. A. 167:845, 1958. Sullivan, R. D., and others, Cancer 12:1248, 1959.



ILOCALM and ILOMEL

Chemistry • Ilocalm combines methscopolamine nitrate, d-calcium pantothenate, and mephobarbital. Ilomel combines d-calcium pantothenate, calcium carbonate, and defatted dehydrated milk powder.

Pharmacodynamics • Ilocalm tablets provide antiulcerogenic and anticholinergic sedation, while Ilomel powder is a fast-acting antacid with long duration of therapeutic effect. Methscopolamine nitrate is a quaternary ammonium derivative of scopolamine, with the same actions as the bromide salt: d-calcium pantothenate is the calcium salt of dextrorotatory pantothenic acid; mephobarbital is a long-acting barbiturate. The combination in Ilocalm provides the antiulcerogenic activity of pantothenic acid to implement the known values of sedation and the selective anticholinergic depression of parietal cell activity. Pantothenic acid opposes the ulcerogenic side effects of corticosteroids; it is an essential component of coenzyme A, required in the Krebs cycle, and is believed to act at the cellular level to maintain normal resistance of the gastrointestinal mucosa to the ulcerogenic side effects of corticosteroids.

Ilomel powder combines the antiulcerogenic activity of d-calcium pantothenate with the antacid properties of calcium carbonate. Despite the water-insolubility of calcium carbonate, it is fast-acting chemically, but the duration of therapeutic action is long because of the slow gastric emptying time associated with the drug's water-insolubility. The dehydrated milk base in Ilomel has special advantages in the antacid management of peptic ulcer, since milk protein favors a positive nitrogen balance for fecal loss of dietary phosphate.

Absorption; fate; excretion • Orally administered belladonna alkaloids, including scopolamine, are absorbed rapidly and distributed to all the tissues. Most of the absorbed scopolamine is destroyed in the liver; about 1 per cent is excreted by the kidneys. Methscopolamine appears to be less susceptible to enzymatic hydrolysis. The *in vivo* conversion of methscopolamine to scopolamine is apparently unnecessary for its anticholinergic action. Mephobarbital appears to be partially demethylated in the body to yield phenobarbital; only traces are excreted in the urine, and the extent of destruction by the liver has not been determined. Calcium pantothenate is rapidly absorbed from the gastrointestinal tract, and excesses are excreted as pantothenate, largely in the urine. Calcium carbonate is neutralized in the stomach by gastric acid, thus being converted to calcium chloride, which is converted in the intestine to insoluble phosphates, excreted in the feces.

Toxicology • Methscopolamine is one-third as toxic as scopolamine; no fatalities from this drug have

been reported in clinical practice. Symptoms of overdosage would be typically those of atropine: dryness of mouth and throat, dilatation of the pupils, numbness of the limbs, staggering gait, and coma. Antidotes are charcoal, milk, and eggs; Neostigmine, given parenterally, is a physiologic antidote. The toxicity of mephobarbital is similar to that of phenobarbital. In the event of acute overdosage of Ilocalm, the toxic effect of methscopolamine would probably predominate. The most disturbing side effect reported with calcium carbonate is constipation resulting from the insoluble calcium compounds formed in the intestine. With Ilomel, however, this problem has been minimal. Massive hourly doses have been known to cause nausea. Systemic alkalosis during calcium carbonate administration is rarely observed except in the presence of chloride loss. "Rebound" secretion has not been noted, but remains a possibility. The possibility that calcium administration contributes to urinary calculi formation has been disputed, but should be kept in mind.

Indications • Ilocalm is indicated for duodenal and gastric ulceration and discomfort of the splenic flexure syndrome; also in gastritis associated with hyperacidity, and for relief of hiatal hernia and other conditions where anticholinergic effects are desirable. Ilomel is indicated in the management of hyperacidity, gastritis, heartburn, esophageal pyrosis, and duodenal and gastric ulcers.

Contraindications • Ilocalm should not be used in cases of glaucoma. Caution should be observed in cases of pyloric obstruction, urine retention, prostatic hypertrophy, and intolerance to anticholinergics. Barbiturates should be used with caution in impaired liver function. Nutritional imbalance should be guarded against. Ilomel should not be used in cases of renal failure or severe systemic alkalosis. Calcium compounds may be contraindicated in patients predisposed to the formation of kidney stones.

Dosage schedule • For adults, one Ilocalm tablet with or just before each meal, and two at bedtime. When antacid treatment also is needed, Ilomel Powder is suggested in a dosage of 1 or 2 tablespoonfuls in a half glass of water 4 times a day.

How supplied • Ilocalm Tablets in bottles of 100 and 500. Ilomel Powder (eggnog flavor) in 9½-ounce container with pour opening.

Manufacturer • The Warren-Teed Products Company, 582 West Goodale Street, Columbus, Ohio.

References • Zucker, T. F., Am. J. Clin. Nutrition 6:65, 1958. Hubbard, S. T., Jr., Northwest Med. 58:1542, 1959. Brody, M., and Bachrach, W. H., Am. J. Digest. Dis. 4:435, 1959. Bloom, W. L., and Flinchum, D., J. Am. M. A. 174:181, 1960.

ELECTRELL CREAM

Chemistry • Electrell is a skin cream especially designed for use in electrocardiography and electroencephalography.

Pharmacodynamics • Electrell Cream solubilizes skin oils, thus assuring a good conducting medium without variance. The cream will not corrode electrodes. It is esthetically acceptable because of ease of application and absence of greasiness; the cream disappears after it is gently rubbed into the skin.

Administration • A thin layer of Electrell Cream is applied on skin areas which are smooth and relatively free from hair. The electrode is passed over the prepared area to spread the cream evenly; the strap is then attached and electrodes are adjusted for firm contact without discomfort. When the examination is finished the cream may simply be rubbed into the skin or wiped off with a tissue.

Manufacturer • General Electric X-ray Department (offices in principal cities).

CURRENT LITERATURE

Concomitant unilateral hip and femoral-shaft fractures—a too frequently unrecognized syndrome

► Five cases of associated hip and femoral-shaft fractures are described by Edward E. Kimbrough, Capt. (MC), U.S. Army, in *The Journal of Bone and Joint Surgery,* April 1961. In the author's opinion, modern high-speed transportation leads to accidents frequently involving multiple major fractures which in many cases are not correctly diagnosed until too late for effective treatment. In 4 of the 5 cases reported, the hip fracture was initially undiagnosed, so that the end result was prejudiced in at least 2 of the patients. All of the undiagnosed fractures had been handled by competent physicians, in some instances experienced orthopedists, for periods of from 2 days to 1½ years before the hip fracture was recognized.

In all cases of femoral-shaft fracture, hip fracture should be considered and excluded by clinical and, if necessary, roentgenographic examination. That the combination is not rare is suggested by the fact that five such fractures were seen on one moderately busy fracture service in a period of only 9 months. Nevertheless, only 8 cases have previously been reported in the literature. Among the 5 cases reported here, the hip fracture in 3 cases was discernible on the roentgenograms in retrospect, so that inadequate roentgenographic examination cannot be blamed for the failure to recognize the injury. It would appear that attention is drawn to the more dramatic shaft fracture, and the possibility of further injury to the same femur is not considered. Earlier diagnosis, however, is the first step toward optimum treatment. In this series only 2 of the 5 patients were satisfactorily rehabilitated, and in both instances the combined lesion had been recognized early. In 1 case a nondisplaced femoral-neck fracture was nailed, and the shaft fracture was treated by traction. In the other, an intertrochanteric fracture and a shaft fracture were both treated by traction, and both healed well. In general, the experience suggests that if the hip fracture is amenable to traction, both fractures can be treated successfully with traction; if the hip fracture is not displaced, internal fixation of the hip followed by treatment in traction would be satisfactory. Other methods of treatment are possible, but the important point is that the hip fracture cannot be ignored or treated by less than the most effective available method.

A clinical and histopathologic study of oral leukoplakia

► A study undertaken to clarify the ambiguous concept of leukoplakia is reported by William G. Shafer, D.D.S., and Charles A. Waldron, D.D.S., in *Surgery, Gynecology, & Obstetrics,* April 1961. Although the term "leukoplakia" by derivation means "a white plate," there is lack of agreement among clinicians and pathologists as to the exact meaning of the term in medical practice. At one extreme, the term is used only to describe a white patch on the mucosa which will not rub off. At the opposite extreme, a diagnosis of leukoplakia may be based on strict histologic criteria, and often the diagnosis is made even though clinically the lesion does not appear as a white patch. For many people the term has come to imply or to be synonymous with premalignancy, even though what clear evidence there is on this point indicates the lesions are benign in the vast majority of cases. The authors support the proposal that the term leukoplakia be discontinued as a microscopic diagnosis and replaced by microscopic terms which can be defined and on which there is general agreement, and that the term be reserved for the clinical description of a white lesion on the mucous membrane.

In an attempt to clarify the clinical-pathologic correlations in oral leukoplakia, 332 biopsy specimens from 286 different patients were reviewed by the authors. Nearly 32 per cent of the cases occurred in women, an incidence considerably higher than has generally been reported. Approximately 81 per cent of all patients in the study were over 40 years of age. With regard to location of the lesions, in most of the cases the site was the mandibular alveolar ridge, gingiva, or mucobuccal fold. On the basis of histologic criteria, it was found that 85 per cent of the 332 specimens consisted of benign and innocuous lesions characterized by hyperkeratosis and acanthosis, parakeratosis and acanthosis or hyperkeratosis alone. There appeared to

be no real difference in incidence of the different forms of epithelial dysplasia between men and women except for the preponderance of carcinoma in men. Leukedema occurred far more frequently in men. None of the carcinomas presumably were clinically obvious. The fact that experienced clinicians are not able to differentiate the innocuous white patch from the dangerous lesion on clinical grounds demonstrates the importance of adequate biopsy examination, and also emphasizes the danger of the practice of "watchful waiting" or clinical observation of leukoplakia.

A study of radiation failures and the role of radioresistance in the treatment of cancer of the cervix

▶ A study showing the relative infrequency of radioresistance as the cause of failure in radiation therapy is reported by Alfred I. Sherman, M.D., in *The American Journal of Roentgenology, Radium Therapy, and Nuclear Medicine,* March 1961. In the author's opinion, the low incidence of radioresistance (about 1 per cent) does not deserve the attention that is being paid to it at present, nor does it justify radical alterations in therapy. Instead it may be considered simply further evidence of the value of irradiation in cancer of the cervix. The ready acceptance of radiation failures as being due to radioresistance is a pitfall to be avoided, since it is more likely that improper therapeutic technics constitute the chief cause of failure.

In a series of 422 cases of primary cervical carcinoma treated by radiation, 124 were considered to represent treatment failure, and of these only 23 had persistent disease locally at the cervix and vagina. Before considering these 23 cases as failures due to radioresistance, it was necessary to determine whether the intended dose was delivered. Roentgenograms were available for study in only 18 cases. Careful re-evaluation showed that in none of these cases had the radium applications been satisfactory; errors in placement of the separate intrauterine tandems and vaginal ovoids resulted in isodose patterns that did not contain the tumors within cancerocidal levels. Although there is no certainty that higher dosages would have altered the subsequent course in these cases, it is pointed out that radiation failures did not occur when the dosage actually applied to the lesion was within the practical limits of therapeutic technics. With the improved technics now available, it is possible to "monitor" the application of radium in the anesthetized patient by means of a scintillation counter as well as serial roentgen films developed and studied during the course of the procedure. Careful planning and meticulous technic should avoid most of the errors which formerly led to the unfounded diagnosis of radioresistance. The author emphasizes that absolute radioresistance does not exist, and that any tissue can be destroyed if enough radiation is applied. The relative sensitivity of various tissues is the very basis of radiation therapy; therefore the application of radium should be governed by the strictest criteria.

Craniosynostosis involving the sagittal suture only: Guilt by association?

▶ The advisability of subjecting infants with isolated synostosis of the sagittal suture to craniectomy for cosmetic reasons alone is questioned by Dean J. Hemple, M.D., Lloyd E. Harris, M.D., Hendrik J. Svien, M.D., and Colin B. Holman, M.D., in *The Journal of Pediatrics,* March 1961. In the authors' opinion, such cases have been given an unduly poor prognosis, the condition having been regarded as "guilty by association" with the more ominous sequelae of the less common but more severe forms of craniosynostosis.

For this study, the authors reviewed the clinical findings in 42 cases of craniosynostosis, 18 of which involved only the sagittal suture. There was evidence that fusion of the suture had occurred before birth in 16 cases. Operations were performed in 8 cases, but the craniectomy was considered suboptimal in 4 of these. None of the 18 children evidenced retardation at the time of the initial examination, and retardation had not become evident in follow-up studies of any of the 17 about whom information could be obtained. Roentgenograms showed no evidence of separation of the nonfused sutures, indicating that intracranial pressure was not increased in any of the patients. The heads of those who did not have surgical treatment showed the same gradual progressive enlargement anticipated for age and sex as did those who did have surgical treatment. On the basis of these results, it seems logical to question the unqualified recommendation of craniectomy at an early age for the prevention of stenosis in cases involving only the sagittal suture. As to whether the scaphocephalic child should be operated on for purely cosmetic reasons, one should keep in mind the morbidity and mortality associated with anesthesia and surgical treatment of this magnitude in the small infant. Moreover, the degree of cosmetic improvement after adequate craniectomy may be open to question. In some cases the scaphocephaly persists after the operation; in other cases the infant's head shapes up well even without operation. Craniectomy for prophylactic reasons, as indicated above, would seem inadvisable in view of the evidence that craniosynostosis involving only the sagittal suture rarely causes retardation.

Graded abrasion—a treatment for acne

▶ Results of treatment of 1,500 acne patients over an 11-year period are reported by Rose B. Saperstein, M.D., in *California Medicine,* April 1961. The technic involves long-term continuous superficial abrasion during the active phases of acne, and

seems in a large measure to minimize and prevent the sequelae.

Since patients with acne usually improve during the summer, it is supposed that exposure to sunlight induces desquamation that unplugs the pilosebaceous openings; when the desquamation stops, the plugs re-form and the acne continues. Attempts to reproduce artificially this effect of sunlight have not been successful; medications designed to keep the skin dry and minutely desquamated often dry the skin excessively without accomplishing the mild, continuous, and prolonged desquamation that results from sunlight. In developing the method described here, it was found that of the various abrasive particles tried, fused synthetic aluminum oxide, exhibiting no piezoelectric current, was effective and without granuloma-producing properties. The abrasive particles were then incorporated in a cleansing base, according to three grades of roughness. The mildest grade of soap paste is prescribed first; the patient is instructed to apply it without moistening the skin, to rub it in well with a rotary motion for approximately ten counts to each area, and then remove the paste with a washcloth and hot water. This is done three times a day until dryness, redness, and desquamation occur; only if the skin is irritated, however, should the abrasion be interrupted for a day or two. When the skin remains oily even with continued treatment, the next higher grade of abrasive paste is prescribed. It was observed that the young patients soon learn to control the degree of abrasion, often keeping the various strengths of soap paste at home to use as the condition of their skin requires. Most patients improve appreciably after 6 weeks of continuous superficial graded abrasion, and tend to outgrow the disease with little or no scarring. The routine seems largely to replace the constant fingering of lesions by the patients. No untoward clinical effects were observed, and no hyperpigmentation in Negro or Caucasian skins.

Medical students, family doctors, and family practice

► The need for specific attention to general practice in the undergraduate medical curriculum is emphasized by Thomas E. Rardin, M.D., in *The Journal of the American Medical Association,* May 13, 1961. Although the public increasingly wants and asks for family doctors, the majority of doctors seeking new locations are specialists in limited areas of medical practice. Everyone seems to agree that there is no substitute for a "personal or family doctor," yet each year fewer medical school graduates accept family practice as a way of life. Since the concept of specialization applies to expertness in any field of interest, it is apparent that the current problem is not overspecialization but rather a lack of interest in family practice as a field for specialization. There is good argument for the thesis that a family doctor deserves the designation "specialist" as much as any other physician, provided he has been trained for, develops, then demonstrates skill in relating his wide general perspective of comprehensive medicine to a single person or family group over a continuing period.

In examining the influences that motivate medical students in choosing their careers, it is important to recognize the role played by their teachers, who enjoy considerable respect, prestige, and professional reputation. The enthusiastic personalities to whom the student is exposed represent all specialty areas except that of family practice. It is suggested that medical educators who realize the worth of family practice get together with family doctors capable of dedicated teaching. It is not suggested that medical faculties need fewer specialists but that they need more family doctors who will be accepted and recognized by their associates as equally important in the educational scheme. Every medical school should have a unit of family or general practice operating as an administrative department, separate from and equal in status to all other administrative departments. This department should be staffed by highly qualified specialists in family practice. The disappearance of this key figure, the family doctor, from the American scene cannot be prevented unless family physicians and medical educators alike face and accept this challenge. Each group needs the other. Medical students stand to benefit greatly. But the greatest benefit will be to the public, the group that can keep medicine free by insisting on their freedom of choice of family physicians as well as special consultants. To make this possible, the schools must turn out large numbers of well-trained dedicated family doctors.

Cardiac findings in idiopathic hypercalcemia of infancy

► A case of idiopathic hypercalcemia of infancy is described and 53 cases previously reported are reviewed by William J. Rashkind, M.D., Richard Golinko, M.D., and Mufit Arcasoy, M.D., in *The Journal of Pediatrics,* April 1961. Of the cases reviewed, a significant heart murmur was a feature in 63 per cent, and hypertension in 43 per cent. The authors stress the importance of considering the diagnosis of idiopathic hypercalcemia of infancy in a child with hypertension and/or cardiac murmur.

Congenital cardiac anomalies have not been found at necropsy in any infants with this disease. Similarities in cardiovascular findings in such cases and in cases of vitamin D intoxication suggest that a defect in the metabolism of vitamin D or of related substances with vitamin-D activity may underly the pathogenesis of idiopathic hypercalcemia of infancy. Moreover, the changes in the cardiac valves are the most likely causes of the heart murmur. The origin of the hypertension often observed in this syndrome has not been established. Since evidence of impaired renal function and of nephro-

calcinosis often is found at autopsy, renal factors may be relevant. Because many of the clinical manifestations may be reversible with adequate therapy, it is important that the diagnosis be made as early as possible. Any infant with an elfin face, who fails to thrive and who has hypertension or a murmur which is hard to classify, should be investigated for idiopathic hypercalcemia.

An obstetric-gynecologic survey of the problem of perinatal casualties

► The role of the general physician in the care and supervision of a woman's health throughout her reproductive years is emphasized by Robert E. L. Nesbitt, Jr., in *Postgraduate Medicine,* April 1961. This doctor has the chief responsibility for the "preventive medicine in obstetrics" that is necessary to bring about a reduction in the mortality rate during the perinatal period. It has been found that minority segments of the female population contribute the majority of perinatal casualties, and the disproportionate perinatal wastage among these women often is complicated by a deleterious factor that recurs or persists through successive pregnancies.

The following common denominators are noted in patients who evidence disproportionate perinatal wastage: advanced maternal age, history of abortion or perinatal mortality and morbidity, effects of suboptimal economic status, prolonged time of effort to conceive, diseases such as diabetes, heart disease, and tuberculosis, endocrine imbalance, pelvic disease, anatomic defects of generative tract, blood incompatibilities between mother and fetus, neglected or inadequate medical care before conception, inadequate or totally lacking prenatal supervision. All obstetric patients should be subjected to critical review with regard to these factors.

An attack on the problem of perinatal wastage must be part of the general health program and cannot be relegated exclusively to any single group of medical workers. The problem concerns the entire community. Perinatal loss is one of the most sensitive indexes of the social and economic level of a community. The physician, as medical man and as citizen, must take the lead in assuming responsibility for establishing an effective program for combating such losses.

Calcific tendinitis of the shoulder joint

► A review of 136 cases of calcific tendinitis treated by irradiation is presented by Francis P. Milone, M.D., and Murray M. Copeland, M.D., in *The American Journal of Roentgenology, Radium Therapy, and Nuclear Medicine,* May 1961. The report includes the immediate and long-term results of treatment, a review of pertinent literature, a discussion of the clinical aspects and histopathology of the process, and evaluation of treatment by needling, aspiration, and open surgery.

Although most cases of symptomatic calcific tendinitis will improve in time without specific treatment, the patient may suffer long-continued disability and discomfort. With conservative measures such as roentgen therapy and/or needling and aspiration with injection of procaine and hydrocortisone, one can lessen the period of morbidity and attempt to prevent such complications as adhesive capsulitis, which may result from continued immobilization due to pain. Splinting the affected area should be avoided. Success in treating calcific tendinitis of the shoulder depends on the severity of symptoms; acute cases respond dramatically. Roentgen therapy produces favorable results equal to those with the needling and aspiration procedure. Surgical treatment may be required in cases responding poorly to repeated conservative procedures; however, irradiation is preferable for patients with a cardiac or hematologic problem which will complicate surgical operation. Of the 136 cases reviewed, those representing the acute syndrome gave the most favorable results with roentgen therapy in both the immediate and late follow-up periods. A careful study of 25 patients having tendinitis without calcification, however, indicated that roentgen therapy should not be used in such cases, because of the usually poor response and the possibility of exacerbation of symptoms. These patients should be under the care of an orthopedic surgeon for full evaluation and care.

Cardiopulmonary changes in scleroderma: A physiologic study

► The hemodynamic and pulmonary derangements associated with scleroderma are emphasized by P. K. Conner, M.D., and F. A. Bashour, M.D., in the *American Heart Journal,* April 1961. Although the general clinical picture of scleroderma is well known, the diagnosis is usually missed in cases that begin with cardiac or pulmonary symptoms. For this reason, detailed cardiopulmonary studies were done in 4 cases of scleroderma with evidence of heart disease, in the hope of characterizing the derangements more precisely. Ventilatory and diffusion studies and right-heart catheterization were performed in each instance. The clinical diagnosis was based mainly on the involvement of the skin and various organs including the esophagus, and on skin biopsy studies. There was no evidence of valvular, hypertensive, or overt coronary arterial disease. In 1 case the cardiac and pulmonary studies were repeated after versene therapy and subjective clinical improvement. In 2 cases, a single-breath carbon-monoxide test was performed.

In all 4 cases, reduction in the cardiac output and index was demonstrated, and in 2 cases, marked pulmonary hypertension was found. All patients showed evidence of restrictive ventilatory disturbance, but only 1 showed an obstructive defect in pulmonary ventilation. A large intrapulmonary

venoarterial shunt was noted in all cases. A diffusion defect was also observed in the 2 cases in which the carbon-monoxide test was performed. Although versene therapy brought marked subjective improvement, it failed to improve the pulmonary ventilation or to diminish the intrapulmonary shunt. The findings suggest that in scleroderma an intrapulmonary venoarterial shunting and a diffusion defect are usually present even in cases in which the heart appears to be more involved than the lungs.

Current immunization methods and materials

► The numerous and complex changes in immunization procedures are reviewed and summarized by A. William Menzin, M.D., in the *Archives of Internal Medicine*, March 1961. In addition to the many new immunizing agents recently developed, older procedures are continually being improved, and periodic evaluation of the changes is necessary to keep the practicing physician abreast of developments. In this review, specific information is given for each of the chief diseases in which immunization is possible, and the most important procedures are summarized in ten tables.

Respiratory syncytial virus

► The recently recognized respiratory syncytial virus (RS), a pathogen of major significance in children's diseases, forms the subject of a group of studies reported in *The Journal of the American Medical Association*, May 27, 1961. Together these articles illustrate the progress which has been made in elucidating the natural history of the RS virus.

1. Virus Recovery and Other Observations during 1960 Outbreak of Bronchiolitis, Pneumonia, and Minor Respiratory Diseases in Children, by Robert M. Chanock, M.D., Hyun Wha Kim, M.D., Andrew J. Vargosko, Ph.D., Ann Deleva, M.S., Karl M. Johnson, M.D., Christine Cumming, R.N., and Robert H. Parrott, M.D.: From March through July 1960, 56 strains of RS virus were isolated from 346 infants and children with respiratory disease, especially infants under 7 months old who had bronchiolitis or pneumonia. Another outbreak of infection began the following November and lasted through February 1961, and during this period 94 strains of RS virus were recovered from 521 individuals, again mostly from young infants, three of whom died soon after admission to the hospital. The peak occurrence of pneumonia and bronchiolitis coincided with the period of greatest RS-virus activity.

2. Serologic Studies over a 34-Month Period of Children with Bronchiolitis, Pneumonia, and Minor Respiratory Diseases, by Robert H. Parrott, M.D., Andrew J. Vargosko, Ph.D., Hyun Wha Kim, M.D., Christine Cummings, R.N., Horace Turner, Robert J. Huebner, M.D., and Robert M. Chanock, M.D.: Serologic studies carried out during the period from October 1957 through July 1960 indicated that RS virus infection was present in about 11 per cent of 1,038 infants and children hospitalized with respiratory-tract illnesses. RS infection occurred during a circumscribed period of time in each of the 3 years, in the area of Washington, D.C. Effective immunization in early infancy could prevent much of this type of illness.

3. Production of Illness and Clinical Observations in Adult Volunteers, by Howard M. Kravetz, M.D., Vernon Knight, M.D., Robert M. Chanock, M.D., J. A. Morris, Ph.D., Karl M. Johnson, M.D., David Rifkind, Ph.D., M.D., and John P. Utz, M.D.: Nasopharyngeal inoculation with respiratory syncytial virus was followed by a "common cold" in 20 of 41 adult volunteers. Virus was recovered from 85 per cent of those who became ill and 62 per cent of those who did not become ill. The illness was milder than that associated with RS infection in children; this may have represented a protective effect resulting from previous infection. The presence of measurable RS neutralizing antibody in all volunteers before inoculation is consistent with this concept.

4. Correlation of Virus Shedding, Serologic Response, and Illness in Adult Volunteers, by Karl M. Johnson, M.D., Robert M. Chanock, M.D., David Rifkind, Ph.D., M.D., Howard M. Kravetz, M.D., and Vernon Knight, M.D.: Among 41 adult volunteers, induced illness occurred for the most part in individuals who shed detectable virus for an interval of more than 2 days. Illness did not occur until after the initial isolation of virus, which generally took place on the third or fourth day after inoculation. Neutralizing and complement-fixing antibody responses to RS virus occurred mostly in subjects who developed clinical illness. This finding together with the correlation of illness with duration of virus shedding suggested that the RS infection was confined to respiratory manifestations. For isolating the virus from the inoculated subjects, throat swabs were found superior to nasal swabs. Hanks' 0.5 per cent gelatin was not capable of preserving infectious virus through a single cycle of freezing and thawing.

ADVANCE CONVENTION REGISTRATION

American Osteopathic Association's 66th Annual Convention

Las Vegas, Nevada, January 15-18, 1962

1962 REGISTRATION RULES

Those who may register are: members of the Association, their children, and their adult guests who are not osteopathic physicians; osteopathic students, osteopathic students' wives; commercial and scientific exhibitors.

Osteopathic physicians who are not members of the Association but appear to be eligible for membership will pay a fee of $75.00 in addition to the $30.00 convention registration fee. Such doctors may thereupon apply for membership at the registration desk, and their $75.00 fee will be applied to their annual dues. All such applications will be put through the regular channels. If the applicant is not acceptable, $50.00 of the $75.00 will be returned and the remainder retained as the registration fee charged nonmembers.

Osteopathic physicians not eligible for membership in the Association may register for the Convention, but only upon the presentation of official, written evidence of current membership in a divisional society of the Association. Such doctors must pay a fee of $25.00 in addition to the $30.00 convention registration fee.

SUMMARY OF INSTRUCTIONS

1. Fill in Advance Registration Form.
2. Give names of adult guests and juvenile guests (under 18 years).
3. Make check payable to: American Osteopathic Association.
4. Mail Advance Registration Form and Check to:

American Osteopathic Association
Bureau of Conventions
212 East Ohio Street
Chicago 11, Illinois

Flamingo Hotel

Dunes Hotel

ADVANCE REGISTRATION FORM

Name_____

_____

Street Address City Zone State

Adult guests_____

Juvenile guests_____

_____

This space for A.O.A. Central Office use, only:

Amount received_____

Date postmarked_____

Date received_____

REGISTRATION FEES

*Member of American Osteopathic Association	$30.00
*Adult guests	$30.00
†Members of AAOA House of Delegates *(Whose husbands are not in attendance)*	$10.00
§Juvenile guests *(under 18 years)*	No Fee
§Students, including interns and residents	No Fee
§Wives of students	No Fee
Nonmembers, but eligible	‡$75.00 plus $30.00
Nonmembers, ineligible	‡$25.00 plus $30.00
Children's activity ticket	$5.00

**Includes tickets for: A.O.A. President's Luncheon, Andrew Taylor Still Lecture and Luncheon, A.O.A. Cordiality Hour, and Alumni Luncheon.*

†*Includes women's tea only.*

§*Individual tickets for entertainment events may be purchased.*

‡*See registration rules on this page.*

Hotel Reservation Application

66th Annual Convention
American Osteopathic Association
January 15-18, 1962
Las Vegas, Nevada

Hotels require reservations before January 7. Early application is advised.

Important! Please read these instructions before filling out application form at the right:

1. All reservations must be made directly to:

   A.O.A. Housing Bureau
   FLAMINGO HOTEL
   Las Vegas Boulevard South
   Las Vegas, Nevada

2. Do not send reservations to the local convention arrangements committee or to the American Osteopathic Association Central Office.

3. Classifications of eligible applicants for hotel accommodations: member, officer, trustee, scientific or commercial exhibitor.

4. Activities will take place at the Flamingo and Dunes hotels, and the Las Vegas Convention Center.

SPECIAL A.O.A CONVENTION HOTEL RATES

		SUITES	
	Twin-bedded room (1 or 2 persons)	One bedroom and parlor	Two bedroom and parlor
Flamingo Hotel (Headquarters)	$10.00	$30.00	$45.00
	12.00	35.00	55.00
	14.00	40.00	60.00
	16.00		
Dunes Hotel	$10.00	$30.00	$45.00
	12.00	35.00	55.00
	14.00	40.00	
	16.00		

Note: If a room at the rate requested is not available, a room at the next available rate will be assigned.

PLEASE PRINT OR TYPE AND CHECK HOTEL PREFERENCE

Date of application_____

HOTEL PREFERENCE:

☐ Flamingo Hotel ☐ Dunes Hotel

ACCOMMODATIONS:

☐ Single occupancy (twin beds); rate desired: $_____ per day

☐ Double occupancy (twin beds); rate desired: $_____ per day

☐ One bedroom and parlor suite; rate desired: $_____ per day

☐ Two bedroom and parlor suite; rate desired: $_____ per day

Date of arrival_____ Hour_____

Date of departure_____ Hour_____

OCCUPANTS:

(The name of each hotel guest must be listed. Therefore, please include the names of both persons who will occupy each twin-bedded room requested. Please do not make reservations for anyone without definite agreement with parties involved.) The name and address of each person for whom you are requesting reservations and who will occupy the room is:

_____

_____

APPLICANT:

Name_____

_____

Street Address City Zone State

Name of firm, if commercial exhibitor_____

PROMPTNESS IN COMPLETING THIS FORM WILL INSURE DESIRED HOTEL ACCOMMODATION

BOOK REVIEWS

► *Books for review which were received during the period from June 5 to July 5 are listed on pages A-115 to A-118. Reviews of these books will be published as space permits.*

► RESUSCITATION OF THE NEWBORN INFANT. Principles and Practice. Edited by Harold Abramson, M.D., Professor of Clinical Pediatrics, New York Medical College, New York, N. Y.; Director of Maternal and Child Health Program, New York Medical College-Metropolitan Medical Center, New York, N. Y.; Attending Pediatrician, Flower and Fifth Avenue Hospitals, New York, N. Y.; Visiting Pediatrician, Metropolitan Hospital, New York, N. Y.; Chief, Communicable Disease Service, Metropolitan Hospital, New York, N. Y.; formerly Epidemiologist, Bureau of Preventable Diseases, New York City Department of Health. Cloth. Pp. 274, with illustrations. Price $10.00. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1960.

This extremely important and well-produced book is the work of twenty-four American contributors, including obstetricians, anesthesiologists, and pediatricians. It adds much to the knowledge already accumulated on this subject, and it will be of immense aid to persons responsible for efforts to reduce perinatal morbidity and mortality in all parts of the world.

There are chapters on basic physiology, pathology, factors predisposing to neonatal morbidity and mortality, care of the mother, use and abuse of drugs, and a most comprehensive chapter on obstetric analgesia and anesthesia, by two well-known anesthesiologists, Virginia Apgar and Frank Moya.

Here is one quotation to illustrate the type of concept stressed in this book:

> The use of drugs, no matter what type, should not be considered until the methods of resuscitation as described in Chapter 10 [clearing of the airway, oxygen inhalation, and ventilation] have been initiated. Immediate ventilation of the lungs is of the essence, whether this is being accomplished artificially or whether function began spontaneously. Drugs should be used solely as adjuvants of very limited value. . . . Probably the only agent necessary in the delivery room is oxygen. This too may be obviated if a good clear airway is established and an adequate respiratory minute volume is maintained, using room air as the source of oxygen.

The newer methods of newborn evaluation, such as the now universally used Apgar scoring system, are presented. Each chapter includes a complete bibliography, a unique feature for a book of this type.

Such a comprehensive review as this has filled a long-felt need. It is highly recommended not only to anesthesiologists, but to all who are concerned with the care of the parturient and the infant.

A. A. GOLDEN, D.O.

► CUTANEOUS MANIFESTATIONS OF THE RETICULOENDOTHELIAL GRANULOMAS. Edited by Samuel M. Bluefarb, B.S., M.D., F.A.C.P. Cloth. Pp. 442, with illustrations. Price $14.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

This text is the fourth in a series of monographs on diseases of the reticuloendothelial system as they manifest themselves dermatologically. The text is divided into four sections with different contributing authors for each of the sections.

The first section discusses lipidoses. A very readable, informative review of lipid metabolism is included. A classification is presented; the various disease entities are then systematically discussed. Exception might be taken to the use of the term "reticulocytes," as indicated on page 74 in the discussion of Gaucher's disease. Common usage would restrict "reticulocytes" to the supravitally stained erythroid series, rather than indicating the Gaucher's cell to be derived from this cell form. In the discussion of the hematologic findings in Gaucher's disease, the statement is made that thrombocytopenia is invariably present. Exception can be taken to this statement.

The section by Dr. Bluefarb on systemic reticuloendothelial granulomas is well done. The arguments for and against the consideration of Letterer-Siwe disease, Schüller-Christian disease, and eosinophilic granuloma as varing manifestations of the same basic entity are reviewed thoroughly. Representative case histories and summaries of the cases reported in the literature are also included, with editorial comment as indicated.

Sarcoidosis is thoroughly discussed in all of its ramifications in the third section.

The discussion of mastocytosis (urticaria pigmentosa) is extensive and might be considered too

lengthy in view of the rareness of this disease. On the other hand, the discussion serves as an admirable basic reference for those interested in reviewing this disease and having available documentation of the literature pertaining to it.

The numerous illustrations are of varying quality and informativeness. The photographs are often reproductions derived from case reports in the literature. There would appear to be a redundancy of the photographs of skin manifestations of Letterer-Siwe's disease, little difference being evident between photographs. In all respects, however, this text is extremely interesting, well presented, and can be considered an excellent reference for histopathologists, dermatologists, and internists. It would be a welcome addition to any well kept library.

SIDNEY J. KATZ, D.O.

▶ MAN'S POSTURE. Electromyographic Studies. By J. Joseph, M.D., M.R.C.O.G., Reader in Anatomy, Guy's Hospital Medical School, London. Cloth. Pp. 88, with illustrations. Price $5.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

This slender monograph is dedicated to the proposition that normal posture (at ease) is to a large extent the function of certain ligaments of the lower limbs and torso. Ligaments largely involved are those of the knee and hip, to which may be added certain segments of the spine anterior to the vertical line of weight as viewed from the side. Muscle groups concerned in the maintenance of normal standing posture (an idealized conception) are the soleus and gastrocnemius for the ankle and the posterior spinal muscles for the vertebral segments which lie posterior to the vertical line of weight.

It will be of interest to osteopathic readers that the author cites some of the work of the Kirksville group in developing his thesis. He refers twice to the studies of J. S. Denslow and C. C. Hassett on "The Polyphasic Action Currents of the Motor Unit Complex," published in the *American Journal of Physiology* in 1943. Drs. Denslow and Hassett, from the author's investigations, would seem to have been the first physiologists to suggest that a motor unit may consist typically of not one bundle of muscle fibers, but of several bundles "scattered quite widely throughout the muscle." I gather from reading the original report that this was among the first, if not the first, published report of investigations of this phase of action potentials in the human subject. In the book, Joseph cites several investigators (some of world renown, such as G. Weddell) who have affirmed—if not quite proved—the postulate of the Kirksville investigators, the latest being in 1958. The technical difficulties involved in electromyography preclude (1960) experimental proof.

Joseph reviews the findings of some five-score investigators to which he adds his own postural studies, and joins with others—notably Ralston and Libet, 1953—in the conclusion that resting muscle is devoid of tonus as we have been led to understand the term. He challenges critics to "prove the *presence*" (italics his) "of motor unit activity in relaxed limb muscles."

Man's Posture, a technical book with 74 pages of text, should prove of particular value to physiologists, anatomists, and students of osteopathic philosophy and technic.

H. G. GRAINGER, D.O.

▶ SYSTEMIC LUPUS ERYTHEMATOSUS. By Daniel L. Larson, M.D., Assistant Professor of Medicine, Columbia University College of Physicians and Surgeons; Assistant Attending Physician of the Presbyterian Hospital; Visiting Physician, Francis Delafield Hospital; and Chief, Rheumatic Fever Clinic of the Edward Daniels Faulkner Arthritis Clinic, Presbyterian Hospital, New York. Cloth. Pp. 212, with illustrations. Price $7.50. Little, Brown and Company, 34 Beacon Street, Boston 6, 1961.

Systemic lupus erythematosus has become a cause for increasing concern, particularly since a laboratory manifestation of the disease has been discovered. The L-E cell has become the evanescent factor that to some degree has replaced lues as the great imitator. Further, it has been one of the reasons for false positive results on serologic tests for syphilis.

A disease which affects principally the loose connective tissue, yet without known cause, must have a host of variations; this text takes each known factor as a unit for discussion. For example, since joints are a major site of involvement, the author explains some of the rheumatoid complications which cause confusion. He also discusses the other systems and various ramifications of the disease. One section gives a detailed explanation of what is known about the special laboratory manifestations. The author's clinical experience with 200 cases of systemic lupus erythematosus, over a period of 20 years, is incorporated into the text.

This book should be in all hospital libraries. It should be read by interns, residents, and practicing internists and dermatologists, and it could be read with profit by all physicians.

A. P. ULBRICH, D.O.

▶ PREMATURITY. The Diagnosis, Care and Disorders of the Premature Infant. By Beryl Corner, M.D., (Lond), F.R.C.P. (Lond.), Consultant Paediatrician United Bristol Hospitals and Southmead General Hospital. Group: Shaw Lecturer on Diseases of Children and Clinical Teacher in Child Health, University of Bristol. Cloth. Pp. 587, with illustrations. Price $21.00. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

Care of the premature infant should focus around the thought that normal life expectancy is about 70 years, and laxity of treatment at the earliest point can have results lasting for all those years. Dr. Corner's book is a study of all known factors relating to prematurity—causes and possible prevention,

the subtle processes involved in healthy survival, the "hazardous moments," and other related aspects —written for anyone who encounters this problem. The subject matter is divided into five parts: definition, incidence, causes, and prevention of prematurity; diagnosis of prematurity; care of the premature infant; disorders of the premature infant; and prognosis in prematurity. Dr. Norman J. Brown has contributed a chapter on the pathology of the premature infant, and there are appendices on medical procedures, nursing procedures, antibiotics for the premature infant, and composition of milks.

▶ MEDICAL, SURGICAL, AND GYNECOLOGICAL COMPLICATIONS OF PREGNANCY. By the Staff of the Mount Sinai Hospital, New York City; Edited by Alan F. Guttmacher, M.D., Obstetrician and Gynecologist-in-Chief, The Mount Sinai Hospital, New York; and Joseph J. Rovinsky, M.D., Assistant Attending Obstetrician and Gynecologist, The Mount Sinai Hospital, New York. Cloth. Pp. 619, with illustrations. Price $16.50. The Williams & Wilkins Company, 428 East Preston Street, Baltimore 2, 1960.

The Mt. Sinai Hospital obstetric department has organized itself into ten specialty clinics: cardiac, pulmonary, hypertensive-renal, diabetic, hematologic, neurologic, psychosomatic, obstetric-gynecologic endocrine, vaginitis, and varicose vein. Each clinic is directed by a specialist in the medical discipline involved, and the obstetric-gynecologic residents attend the clinics both to receive instruction and to provide routine prenatal care to the patients. Complications not regularly managed in the clinics are handled through consultation, and the consultants address occasional obstetric staff conferences on their particular subject. From the participants in this program of practice has come the volume here reviewed. It is intended as a supplement to the standard obstetric texts, and special emphasis has been given to treatment methods. Information has been kept current by excluding most references published before 1950. The book has application in many fields of practice, though of course especially to obstetrics.

▶ GYNECOLOGICAL UROLOGY. Edited by Abdel Fattah Youssef, M.B., D.S., D.G.O., M.Ch., F.I.C.S., Lecturer in Obstetrics and Gynecology, Cairo University; Obstetric and Gynecological Surgeon, Kasr-el-Aini Hospital, Cairo, Egypt, U.A.R.; Member of the Swedish Society of Obstetrics and Gynecology; Member of the German Gynecological Association. Cloth. Pp. 893, with illustrations. Price $22.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

An impressive array of "names" appear in the list of contributors to this book. From the United States and Great Britian, for example, there are Theodore C. Bramhall, Meredith F. Campbell, Virgil S. Counseller, Hugh J. Davis, Ian Donald, Houston S. Everett, J. P. Greenhill, Arnold H. Kegel, Lowrain E. McCrea, J. V. Meigs, J. Chassar Moir, Clifford A. Simmons, John Stallworthy, John S. Welch, and Charles Wells.

After an introductory section, the book contains a section on anatomy, physiology, and pharmacology. Then follow two sections on specific disorders, one of nine chapters on genitourinary fistulae and one of four chapters on sphincter incontinence. The last three sections are on urologic diseases of gynecologic significance, effect on gynecologic conditions of the urinary system, and the urinary system in gynecologic surgery.

Such a book has long been needed. The subject has too often been considered outside the provinces of both urologist and gynecologist, and it is good to see a cooperative approach to what is usually considered a therapeutic "no man's land."

▶ AMERICAN DRUG INDEX 1961. By Charles O. Wilson, Ph.D., Dean and Professor of Pharmaceutical Chemistry, School of Pharmacy, Oregon State College; and Tony Everett Jones, Ph.D., Associate Professor of Pharmaceutical Chemistry, School of Pharmacy, University of Colorado; Director of Pharmaceutical Research, Carbisulphoil Company. Cloth. Pp. 791, with illustrations. Price $6.75. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1961.

With each succeeding edition the *American Drug Index* has grown more helpful. It has become more comprehensive, and cross indexing has been improved, so that by now it holds well its somewhat unique position as a current compendium of information on pharmaceuticals. Those unfamiliar with its format should be told that it lists preparations by many names: generic, brand, chemical, U.S.P., N.F., N.N.D., and A.D.R., including synonyms in general use. It also lists drug combinations by each major ingredient, with obvious advantage. The book is useful to anyone who has occasion to identify pharmaceuticals, from whatever standpoint.

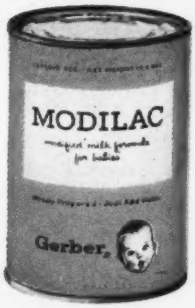
▶ PRINCIPLES OF ORTHOPAEDIC SURGERY. By Paul C. Colonna, M.D., Professor of Orthopaedic Surgery, Emeritus, University of Pennsylvania Medical School. Revised Edition. Cloth. Pp. 799, with illustrations. Price $22.00. Little Brown & Company, 34 Beacon Street, Boston, 1960.

The orthopedist familiar with the first edition of this text, published in 1950, will be pleased to see this revised volume. Of special interest is the additional emphasis on trauma, because of the increase of traumatic disabilities in the population at large. As in the first edition, this book reflects largely the personal teaching experiences of the author. It deals with the function of the musculoskeletal system and with the prevention, correction, and investigation of injuries, diseases, and anomalies of the mechanical framework of the human body.

Because of the nature of the problems involved in this specialty, the clinician, the pathologist, the radiologist, the biochemist, the physiologist, the physicist, and the physical therapist should correlate their skills with the orthopedic surgeon; all of these persons will find this text helpful.

FLASH

ONLY GERBER MODILAC IS FLASH-STERILIZED



Modilac, a new milk formula, is sterilized in only 8 seconds at high temperatures, then instantly cooled and canned. In conventional processing, the formula is sterilized *in the can* at high temperatures from 16 to 22 minutes—then cooled slowly.

The flash-sterilization method sharply reduces browning and caramelization caused by amino-sugar bonding and prolonged high temperatures. As a result, Modilac *retains the color and flavor* of milk. Flash-sterilization also assures better retention of "protein food value." Of the 9 essential amino acids, none is markedly reduced.

Excellent protein utilization. A recent clinical study[1] indicated that infants receiving Modilac, in general, performed more efficiently than those of the control groups: weight increment from 2 to 16 weeks was highest; weight gain *per unit* or *per calorie* consumed was greatest.

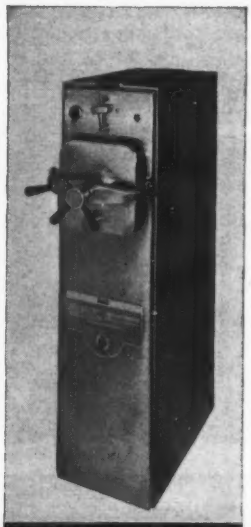
Nutritional advantages of Modilac. Protein value is intermediate between that of breast milk and cow's milk. Corn oil replaces butterfat . . . helps to maintain linoleic acid blood levels comparable to those of breast-fed infants . . . assures optimal caloric efficiency.[2] Vitamin C is added to meet the Recommended Daily Dietary Allowance.[3] Vitamins A, D, B_6 and thiamine are also added.

1. Mosovich, Luis L., Pessin, Vivian and Lowe, Charles U.; Effects of Milk Composition on Baby Composition, AM. J. Dis. Child. 100: 791-792, 1960. 2. Adam, Doris J.D., Hansen, Arild E. and Wiese, Hilda F.; Essential Fatty Acids in Infant Nutrition, J. Nutrition 66: 555-564, 1958. 3. Food and Nutrition Board, National Academy of Sciences—National Research Council, Washington, D.C. (Revised 1958)

BABIES ARE OUR BUSINESS...OUR ONLY BUSINESS!.

GERBER® BABY FOODS FREMONT, MICHIGAN

The 613-R Dynaclave
Low-cost, high-speed autoclave — portable automatic — efficient



The 1022 Aristocrat Autoclave
Office pressure steam sterilization to hospital standards and convenience

EVERY PHYSICIAN

CAN NOW GIVE PATIENTS THE POSITIVE PROTECTION OF PRESSURE STEAM STERILIZATION

The NEW 8816M Autoclave
Redesigned to meet the same exacting sterilization standards of the 8816, but at substantially lower cost and with greater capacity.

One of these Amsco Autoclaves can substantially aid your efforts toward improved patient protection against the contaminated needle, or other instruments in your office.

Assurance of the positive protection of pressure steam sterilization is a comfort appreciated most highly by the physician who has faced the problem of cross-contamination. There is an authorized Amsco Dealer near you — ready to advise and serve your requirements for sterilization equipment and adequate techniques. Mailing this coupon with your letterhead will bring full details . . .

AMERICAN STERILIZER
ERIE • PENNSYLVANIA

Service Centers in . . .
Atlanta, Boston, Chicago, Cincinnati, Dallas, Denver, Detroit, Los Angeles, New Orleans, New York City, Philadelphia, Pittsburgh, Richmond, St. Louis, St. Paul, San Francisco, Seattle, Tampa, Washington, D. C., including a dispersed Amsco Serviceman located near YOU for prompt service.

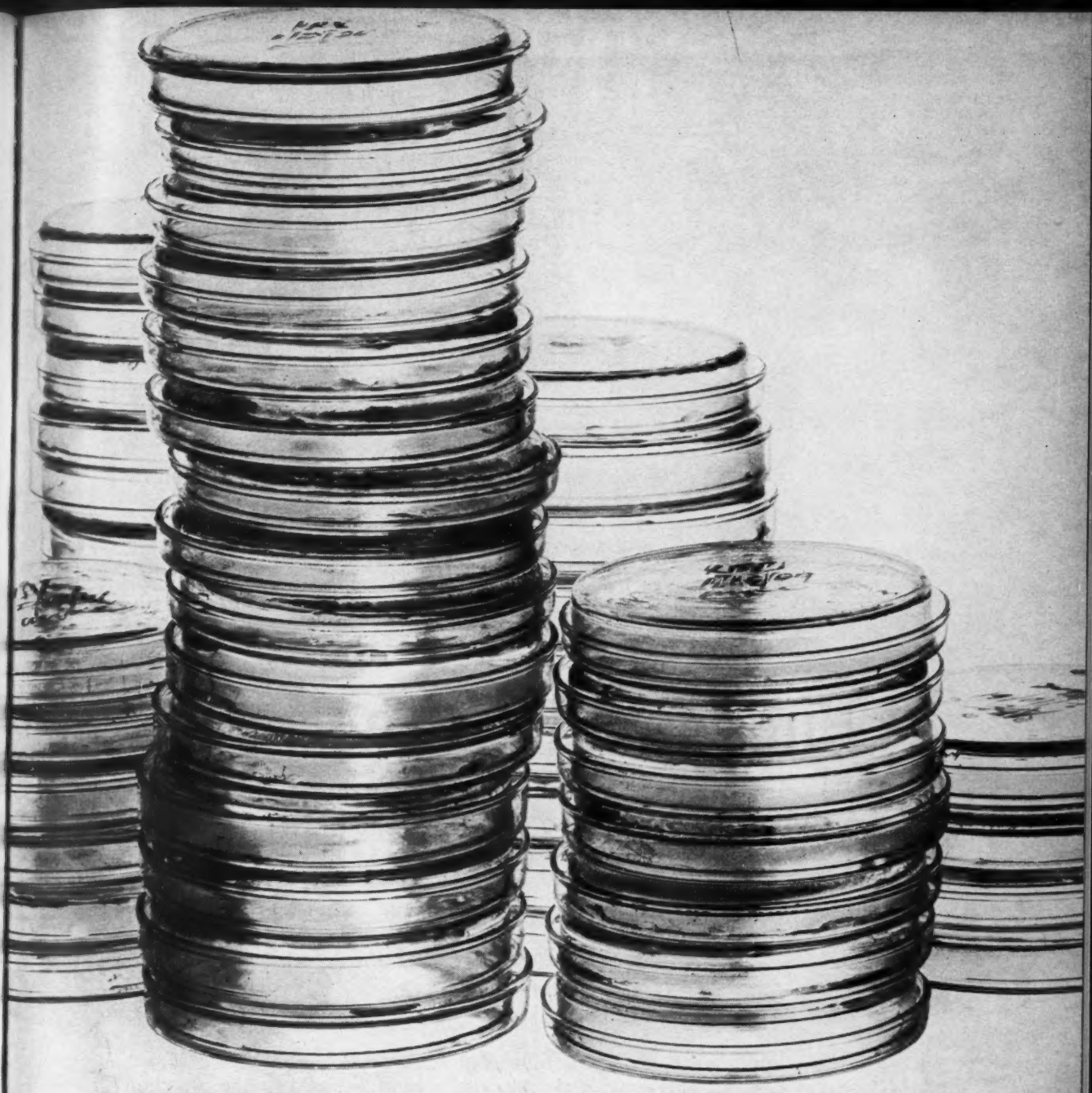
Send Bulletin on Autoclaves 613-R ☐ 8816M ☐ 1022 ☐ and location of nearest Amsco Dealer

Name _____

Address _____

City _____ Zone _____ State _____

7



after eleven million treatment courses*... consistently broad antibacterial action

brand of nitrofurantoin

Furadantin®

through the years...consistently broad antibacterial action against urinary tract pathogens—"It was interesting to observe that nitrofurantoin [FURADANTIN] showed a consistent in vitro effectiveness against the bacteria tested throughout the four year period, thus revealing negligible development of bacterial resistance, if any, through the years." Jolliff, C. R., et al.: Antibiot. Chemother. (Wash.) *10*:694, 1960.

*Conservative estimate based on the clinical use of FURADANTIN tablets and Oral Suspension since 1953.

rapid, safe control of infection throughout the urinary system

EATON LABORATORIES, Division of The Norwich Pharmacal Company, NORWICH, N.Y.

Put your low-back patient back on the payroll

Soma's prompt relief of pain and stiffness can get your low-back patients back to work in days instead of weeks

Soma is unique because it combines the properties of an effective muscle relaxant and an independent analgesic in *a single drug.* Unlike most other muscle relaxants, which can only relax muscle tension, Soma attacks both phases of the pain-spasm cycle at the same time.

Thus with Soma, you can break up both pain and spasm fast, effectively . . . help give your patient the two things he wants most: relief from pain and rapid return to full activity.

Soma is notably safe. Side effects are rare. Drowsiness may occur, but usually only with higher dosages. Soma is available in 350 mg. tablets. Usual dosage is 1 tablet q.i.d.

The muscle relaxant with an independent pain-relieving action

SOMA®

(carisoprodol, Wallace)

Wallace Laboratories, Cranbury, New Jersey

How you can help save your patients a month's pay

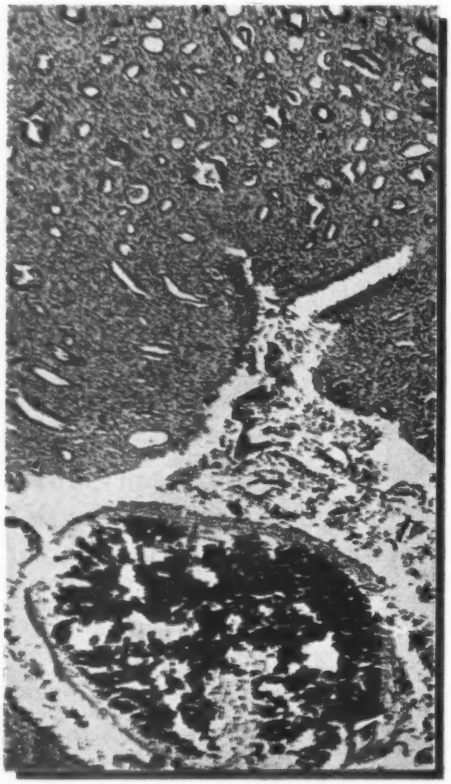
Kestler reports in J.A.M.A. (April 30, 1960) that conventionally treated low-back syndrome patients required an average of 41 days for full recovery (range: 3 to 90 days). The addition of Soma therapy in this comparative investigation reduced the average to 11.5 days (range: 2 to 21 days). With Soma, patients averaged full recovery 30 days sooner.

GOUT

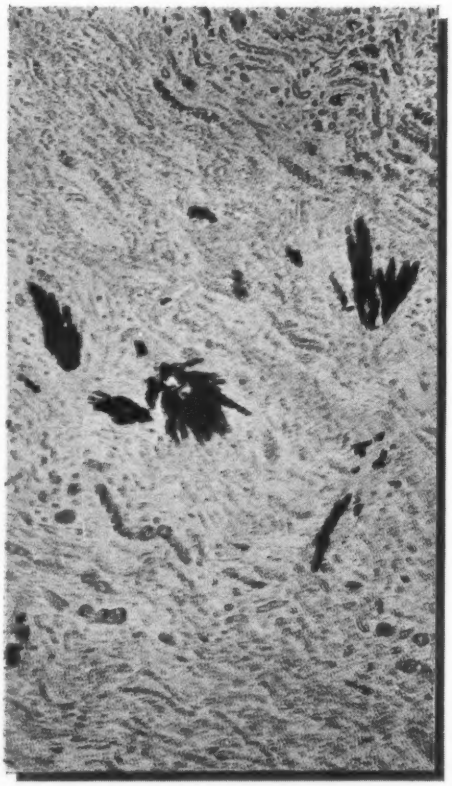
"For centuries the victims of gout have been the subject of lampoons and caricatures. We now know that they should rather be the objects of great concern, for the disease is painful, disabling and is accompanied by complications that impair health and shorten life."[1]

Kidney impairment, with varying degrees of hypertension and arteriosclerosis, is the critical complication of gout. "From 30 to 50 per cent of gouty patients are said to die of renal disease."[2]

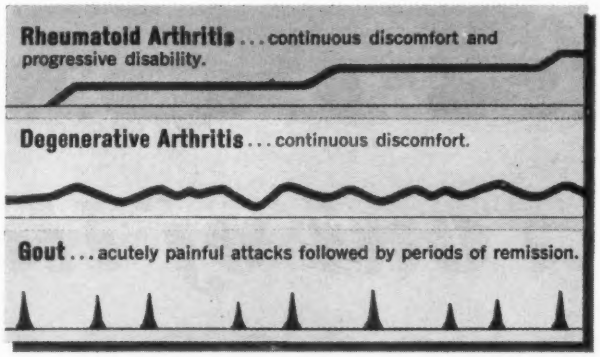
Tophus in the calyx, surrounded by fibrinoid exudate and detached mucosal epithelium.[3]

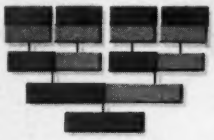


The mid- and outer portion of the pyramid with typical uric acid crystals in the collecting system.[3]



AIDS TO DIAGNOSIS


Rheumatoid Arthritis . . . continuous discomfort and progressive disability.
Degenerative Arthritis . . . continuous discomfort.
Gout . . . acutely painful attacks followed by periods of remission.



"If a family history of gout is obtained, even though it is one or two generations removed, this information is significant."[4]

"The metatarsophalangeal joint of a great toe is affected early or repeatedly in some cases, rarely or never in others."[6]

"All patients complaining of non-traumatic musculoskeletal discomfort should have at least one serum uric acid determination."[5]

Colchicine test: "Colchicine should be administered as early as possible after the onset of articular distress, 1 mg. . . . every 2 hours until the onset of gastro-intestinal distress. From 5 to 8 mg. usually are required."[9] Pain relief is highly indicative of gout.

THE "INSULIN OF GOUT"[7]

"Of the various drugs with uricosuric activity, probenecid [BENEMID] has proved most desirable for long-term administration."[8]

BENEMID®

PROBENECID

Therapy with BENEMID should be continued without interruption since hyperuricemia recurs when dosage is terminated. The rare patient who experiences gastric discomfort is usually benefited by decreasing the dosage. Dosage: 0.25 Gm. twice daily for one week, followed by 1 Gm. daily in divided doses. Supply: 0.5 Gm. tablets.

A COMPLEMENTARY FORMULATION OF TWO CLASSIC ANTI-GOUT AGENTS

"... the greater the experience we have with the combination of colchicine and Benemid the greater the reliance we place upon these two drugs."[9]

ColBENEMID®

COLCHICINE WITH BENEMID

Dosage: One tablet daily for one week, followed by one tablet twice daily. Supply: Each tablet contains 0.5 mg. colchicine and 0.5 Gm. BENEMID. Bottles of 100 and 1000.

1. Cornish, A. L.: J. Kentucky M.A. 58:707, June, 1960. 2. Wyngaarden, J. B.: Arthritis & Rheumatism 1:191, June, 1958. 3. Talbott, J. H. and Terplan, K. L.: Medicine 39:405, Dec., 1960. 4. Talbott, J. H.: Gout, New York, Grune & Stratton, 1957, p. 123. 5. Kuzell, W. C., et al.: J. Chron. Dis. 2:645, Nov., 1955. 6. Hench, P. S.: Gout and gouty arthritis, in Cecil, R. L.: A textbook of medicine, ed. 10, Phila., W. B. Saunders Co., 1959. 7. Bartels, E. C., and Kepkay, P. H.: Bull. Vancouver M.A. 29:306, April, 1953. 8. Boland, E. W.: World-Wide Abstracts of Gen. Med. 3:16, Jan., 1960. 9. Talbott, J. H.: Current Med. Dig. 26:57, Nov., 1959.

Before prescribing or administering BENEMID or ColBENEMID, the physician should consult the detailed information on use accompanying the package or available on request.

MERCK SHARP & DOHME, DIVISION OF MERCK & CO., INC., WEST POINT, PA.

BENEMID AND COLBENEMID ARE TRADEMARKS OF MERCK AND CO., INC.

what TWISTON does for your allergy patient

TWISTON®

rotoxamine

takes him out of this class: zzzzzzzzzz zzzzzzzzzzzzzzz zzzzzzzzzzzzzzz

puts him into this class: !!!!!!!!!!!!!!!! !!!!!!!!!!!!!!!!!!!!!!!!!!!! !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

TWISTON is "tailor-made" to keep your allergy patient alert. Twiston is unsurpassed for symptom control. Twiston is effective in *unusually* low dosage: has a prolonged duration of action—drowsiness rarely occurs. No toxicity reactions reported.

TWISTON
. . . anti-allergic
. . . anti-side effects

available as:

Tablets TWISTON, 2mg.

Tablets TWISTON R-A
***(Repeat Action Tablets),* 4mg.**

McNEIL U.S. PATENT PENDING

McNeil Laboratories, Inc., Fort Washington, Pa.

A-76

Announcing a NEW member of the MULVIDREN family.. MULVIDREN DROPS for infants. Pleasant tasting Orange-Vanilla MULVIDREN DROPS are specially formulated to provide latest authoritative, safe levels of the vitamins needed for modern infant feeding.

MULVIDREN DROPS®

Each 0.6 cc. contains:

VITAMINS: A...3000 USP Units; D...400 USP Units; C...60 mg.; B_1...1 mg.; B_2...1.2 mg.; B_6...0.5 mg.; B_{12}...1 mcg. and Niacinamide...10 mg.

DOSAGE: Infants 0.3 cc. on the tongue or in the formula. Older Children 0.6 cc.

AVAILABLE: Bottles of 30 cc. at all pharmacies.

When formula days are over

and for all the other members of the family

pleasant tasting MULVIDREN® in SOFTAB® form

melts in the mouth—no water needed—the multivitamin EVERYBODY likes

EACH TABLET CONTAINS:

VITAMINS: A...5000 USP Units; D...1000 USP Units; C...75 mg.; B_1...2 mg.; B_2...2 mg,; B_6...1.2 mg.; B_{12} (as Ionex-12*), 3 mcg.; d-Calcium Pantothenate...3 mg.; Niacinamide...10 mg.

DOSAGE: 1 tablet daily or more as directed by physician.

AVAILABLE: Bottles of 50 & 100 tablets at all pharmacies.

*Stuart Ionex-12 increases Vitamin B_{12} absorption.

THE STUART COMPANY Stuart PASADENA, CALIFORNIA

12688/4101

in allergies *For smooth, continuous control of allergic symptoms—relief in minutes for hours, with virtually no side-effects. And there is a dosage form for every allergic patient.*

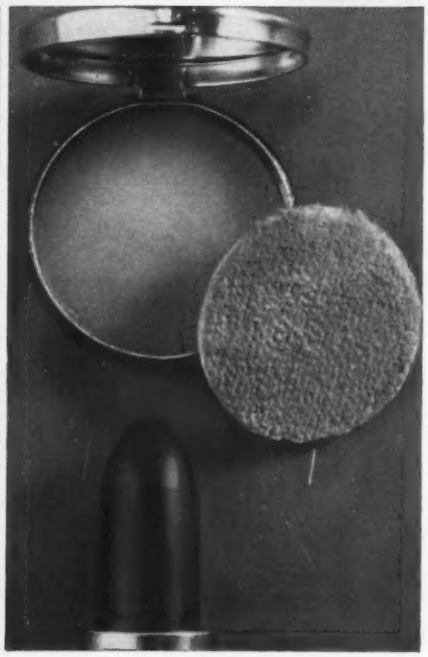
Pulvules® • Suspension • Pediatric Pulvules **Co-Pyronil®**

(pyrrobutamine compound, Lilly)

158007

Lilly

QUALITY / RESEARCH / INTEGRITY



Conventions and meetings

American College of Osteopathic Internists, annual meeting, Hotel Mark Hopkins, San Francisco, October 5-7. Executive Secretary, Glennard E. Lahrson, 400 40th St., Oakland 9, Calif.

American College of Osteopathic Obstetricians and Gynecologists and the American College of Osteopathic Pediatricians, annual meeting, Americana Hotel, Bal Harbour, Fla., February 19-22. A.C.O.O.G. Program Chairman, John C. Dickinson, Jr., 3272 West Rd., Trenton, Mich. Secretary, Arthur A. Speir, Box 66, Merrill, Mich. A.C.O.P. Program Chairman, Arthur Snyder, 386 N. E. 167th St., North Miami Beach, Fla., Secretary, Martyn E. Richardson, 9553 Lackland Rd., St. Louis 14.

American College of Osteopathic Surgeons, annual clinical assembly, Denver Hilton Hotel, Denver, Colo., October 29-November 2. Executive Secretary, Charles L. Ballinger, Box 40, Coral Gables, Fla.

American Osteopathic Association, Sixty-Sixth Annual Convention, Las Vegas, Nev., January 15-18. Program Chairman, W. Clemens Andreen, Andreen Clinic, 1475 Ford Ave., Wyandotte, Mich.

American Osteopathic College of Proctology, refresher course, May 7-8, annual clinical assembly, May 9-11, Eden Roc Hotel, Miami Beach, Fla. Program Chairman, Edmund A. Bowman, 319 Fisher Rd., Grosse Pointe 30, Mich. Secretary, Earle F. Waters, 925 E. South Temple St., Salt Lake City 2, Utah.

Canadian Osteopathic Association, annual meeting, Lord Simcoe Hotel, Toronto, October 5-7. Program Chairman, Norman W. Routledge, 15 Ursuline Ave., Chatham, Ont. Secretary, Miss Joyce S. Currie, 609 Medical Arts Bldg., Montreal 25, Quebec.

Central States Osteopathic Society of Proctology, annual meeting, Oliver Hotel, South Bend, Ind., September 22-24. Program Chairman, William J. Blacker, 48 W. 28th St., Grand Rapids 9, Mich. Secretary, Lloyd B. Hoxie, 39011 Harper, Mt. Clemens, Mich.

District of Columbia, see **Maryland.**

Eastern States Osteopathic Society of Proctology, annual meeting, Marriott Motor Hotel, Washington, D. C., November 4-5. Program Chairman, Felix D. Swope, 1028 Connecticut Ave., N. W., Washington 6, D. C. Secretary, LeRoy W. Lovelidge, Jr., 201 E. Orange St., Lancaster, Pa.

Florida, annual meeting, Carillon Hotel, Miami Beach, October 2-4. Executive Director, Mr. Barton K. Johns, 5009 Central Ave., Tampa 3.

Hawaii, annual meeting in combination with Western States Osteopathic Society of Proctology, Princess Kaiulani Hotel, Honolulu, October 9-12. Program Chairman, Alan R. Becker, 1739 Kalakaua Ave., Honolulu 14. Secretary, Joseph M. Thomas, 1541 S. Beretania St., Honolulu 14.

Idaho, see **Washington.**

Indiana, annual meeting, Hotel Elkhart, Elkhart, May 19-22. Secretary, Arabelle Baker Wolf, 4840 N. Michigan Rd., Indianapolis 8.

Kansas, annual meeting, Broadview Hotel, Wichita, September 23-27. Program Chairman, Irwin J. Conant, Box 125, Meriden. Executive Secretary, Mr. Lloyd L. Hall, 823 W. 10th St., Topeka.

Louisiana, annual meeting, Hotel Monteleone, New Orleans, October 12-14. Program Chairman, Carl E. Warden, 827 Hodges St., Lake Charles. Secretary, V. L. Wharton, 406-07 Weber Bldg., Lake Charles.

Maryland, District of Columbia, and

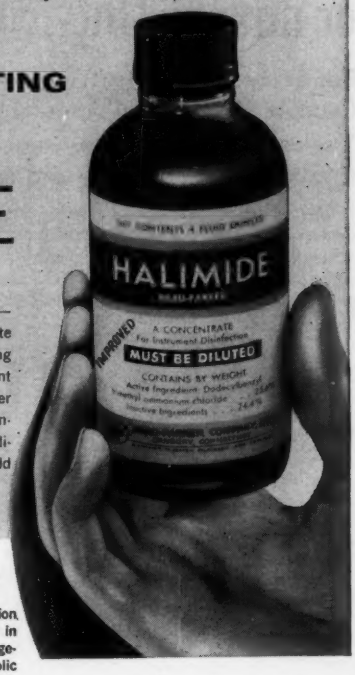
meeting a widespread professional demand

BARD-PARKER DISINFECTING SOLUTIONS

B-P HALIMIDE

Concentrate Disinfectant

. . . now *improved*, HALIMIDE disinfectant—**free from objectionable odor,** is a concentrate of low surface tension and excellent penetrating qualities. Perfect for inexpensive instrument disinfection, 1 oz. mixed with 1 gal. of water makes a stable—clear—non-corrosive—non-staining solution. TUBERCULOCIDAL when diluted with alcohol. No anti-rust tablets to add—no need for frequent changing.



B-P CHLOROPHENYL Disinfectant

. . . an ideal instrument disinfecting solution for professional office use. It is **rapid** in destruction of commonly encountered vegetative bacteria—**free** from phenol (carbolic acid) and mercurials—not injurious to skin or tissue. It is used **full strength**—has a pleasant odor—its germicidal efficiency is not affected by soap.

B-P FORMALDEHYDE GERMICIDE

. . . **sporicidal • tuberculocidal • bactericidal • virucidal • fungicidal,** it is especially suitable for hospital use in the chemical disinfection of instruments and protection of surgical **sharps.** It is used full strength—and within 5 minutes will kill TUBERCLE BACILLI—vegetative pathogens and spore formers—the spores themselves within 3 hours.

B-P **BARD-PARKER COMPANY, INC.**
DANBURY, CONNECTICUT
A DIVISION OF BECTON, DICKINSON AND COMPANY

BARD-PARKER • B-P • CHLOROPHENYL • HALIMIDE are trademarks

Three of these women have vaginitis (trichomonal, monilial or mixed). Only comprehensive therapy can reach all three.

For every 2 cases of vaginitis caused by Trichomonas vaginalis alone, there is usually 1 case caused by Candida (Monilia) albicans, Haemophilus vaginalis, or mixed infection involving several pathogens.[1-3]

You can reach all of these vaginitis patients with the *comprehensive* vaginal preparation effective against C. albicans, H. vaginalis and other bacterial pathogens, *in addition to* T. vaginalis.

1. POWDER *for weekly application in your office:* FUROXONE® (furazolidone) 0.1% and MICOFUR® (nifuroxime) 0.5%, in an acidic water-dispersible base. 15 Gm. plastic squeeze bottle. 2. SUPPOSITORIES *for continued home use:* first week 1 in the morning and 1 on retiring. After first week, 1 at night may suffice. Continue treatment during menses and throughout menstrual cycle and for several days thereafter. Contain MICOFUR 0.375% and FUROXONE 0.25% in a water-miscible base. Boxes of 12 or 24 suppositories with applicator.

TRICOFURON®

Improved

1. Coolidge, C. W.; Glisson, C. S., Jr., and Smith, A. A.: J. M. A. Georgia 48:167 (Apr.) 1959. 2. Ensey, J. E.: Am. J. Obst. & Gynec. 77:155 (Jan.) 1959. 3. Frech, H. C., and Lanier, L. R., Jr.: J. M. A. Georgia 47:498 (Oct.) 1958.

EATON LABORATORIES
Division of The Norwich Pharmacal Company
NORWICH, NEW YORK

Virginia, annual meeting, Carvel Hall, Annapolis, Md., October 7-8. Program Chairman, E. R. MacDonald, 1318 West St., Annapolis, Md. Secretary, Joseph W. Lindstrom, 2732 St. Paul St., Baltimore 18, Md.

Michigan, annual meeting, Pantlind Hotel and Civic Auditorium, Grand Rapids, October 2-4. Program Chairman, George G. O'Malley, P.O. Box 188, Galien. Executive Secretary, Mr. Floyde E. Brooker, 33100 Freedom Rd., Farmington.

Minnesota, annual meeting, Elks Hotel, Brainerd, September 15-16. Secretary, E. R. Komarek, 301 Granite Exchange Bldg., St. Cloud.

Missouri, annual meeting, Sheraton-Jefferson Hotel, St. Louis, October 3-5. Program Chairman, Harry S. Still, Still-Hildreth Osteopathic Sanatorium, Macon. Executive Secretary, Mr. Paul D. Adams, 325 E. McCarty St., Jefferson City.

New Jersey, clinical conference, Cherry Hill Inn, Delaware Township, September 24. Executive Secretary, Mr. R. P. Chapman, 1212 Stuyvesant Ave., Trenton 8.

New Mexico, annual meeting. Western Skies Hotel, Albuquerque, April 12-15. Program Chairman, George C. Widney, Jr., 1125 Kent Ave., N. W., Albuquerque. Executive Secretary, Mr. L. Thomas Christison, P.O. Box 696, Albuquerque.

New York, annual meeting, Sheraton Atlantic Hotel, New York City, October 13-14. Program Chairman, George F. Johnson, 353 77th St., Brooklyn 9. Executive Secretary, C. Fred Peckham, 38 E. Bridge St., Oswego.

North Carolina, annual meeting and refresher course, Battery Park Hotel, Asheville, October 26-28. Program Chairman, Joseph H. Huff, Box 1177, Burlington. Secretary, Walter C. Eldrett, 310 S. Main St., Hendersonville.

Oregon, see **Washington.**

Osteopathic College of Ophthalmology, and Otorhinolaryngology, annual meeting, Americana Hotel, Bal Harbour, Fla., September 26-28. Executive Secretary, Arthur A. Martin, Box 222, Kirksville, Mo.

Pennsylvania, midyear refresher course, Hotel Hershey, Hershey, October 13-15. **Annual meeting,** Penn Sheraton Hotel, Pittsburgh, May 17-19. Executive Director, Mr. Thomas M. Fogarty, 1941 Market St., Harrisburg.

South Dakota, annual meeting, Rapid City, May 6-7. Secretary, Earl W. Hewlett, 417 W. 27th St., Sioux Falls.

Tennessee, annual meeting, Paris Landing Inn, Buchanan, May 6-9. Secretary, Paul Grayson Smith, Box 63, Pikeville.

Vermont, annual meeting, Mt. Snow, Dover, September 27-28. Program Chairman, Mason B. Barney, Box 336, Manchester Center. Clerk, Marian N. Rice, 8 Court St., Windsor.

Virginia, see **Maryland.**

West Virginia, midyear meeting, Greenbrier Hotel, White Sulphur Springs, October 15-17. **Annual meeting,** Daniel Boone Hotel, Charleston, May 13-15. Executive Secretary, Mr. Gilbert D. Brooks, 313 Berman Bldg., Charleston 1.

Washington, Oregon, and Northern Idaho, annual meeting, Olympic Hotel, Seattle, Wash., June 7-9. Secretary, Lon A. Hoover, 1219 Sixth Ave., Tacoma 5.

Western States Osteopathic Society of Proctology, annual meeting, in combination with Hawaii Association of Osteopathic Physicians and Surgeons, Princess Kaiulani Hotel, Honolulu, October 9-12. Program Chairman, George W. Diver, Box 180, Elsa, Texas. Secretary, Marcus S. Gerlach, 2015 State St., Santa Barbara, Calif.

Ontario, annual meeting, Park Hotel, Niagara Falls, May 7-9. Program Chairman, A. Reid Johnston, 1298 King St., E., Hamilton. Secretary, William K. Church, 85 Neywash St., Orillia.

for anything that itches . . .

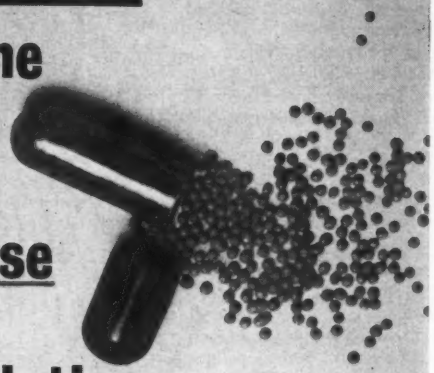
CALMITOL®

stops itch quickly and safely
—protects against scratching!

For any kind of itch—poison ivy, insect bites, heat rash—use CALMITOL first. Cooling, soothing CALMITOL ointment stops itching on contact, is safe even for children's delicate skin. Recommend CALMITOL, and keep it handy at home or for your own vacation. At drugstores: 1½-oz. tubes, 1-lb. jars.

THOS. LEEMING & CO., INC., New York 17

for the first time adequate iron in convenient sustained-release form for more efficient assimilation



Mol-Iron® Chronosules™

sustained-release capsules

for improved treatment of iron-deficiency anemia

Each Mol-Iron Chronosule contains the equivalent of 80 mg. elemental iron. Gradual dosage release means greater patient tolerance — minimizing G.I. disorders. Marked increases in hemoglobin and hematocrit levels through sustained liberation of more absorbable Mol-Iron. All the advantages of specially processed Mol-Iron — now in the form most conducive to efficient assimilation.
Dosage: Adults — one Mol-Iron Chronosule daily. In severe anemia, one Chronosule twice daily. Children — one Mol-Iron Chronosule daily.
Supplied: Bottles of 30 Chronosules.

Complete information concerning the use of this drug is available on request.

WHITE LABORATORIES, INC., Kenilworth, New Jersey

State and national boards

Alaska basic science examinations given on request. Address R. Harrison Leer, M.D., secretary, Board of Examiners, Alaska Office Bldg., Juneau.

Arizona Those interested in professional examinations should contact Russell Peterson, D.O., secretary, Osteopathic Board of Registration and Examination in Medicine and Surgery, 2747 E. McDowell Rd., Phoenix 22.

Basic science examinations September 19 at the University of Arizona, Tucson. Address Millard G. Seeley, Ph.D., secretary, Board of Examiners in the Basic Sciences, University of Arizona, Tucson.

Arkansas examinations given on request. Address E. M. Sparling, D.O., secretary, Board of Osteopathic Examiners, 222 Thompson Bldg., Hot Springs National Park.

Basic science examinations October 19-20. Address Mr. A. W. Ford, commissioner, Board of Education, Little Rock.

Colorado basic science examinations in September. Address Esther B. Starks, D.O., secretary, Basic Science Board, 1459 Ogden St., Denver 18.

Connecticut examinations November 14-15. Applications must be filed in advance. Address Frank Poglitsch, D.O., secretary, Osteopathic Examining Board, 300 Main St., New Britain.

Basic science examinations October 14. Address Miss M. G. Reynolds, executive assistant, Board of Healing Arts, 110 Whitney Ave., New Haven 10.

District of Columbia examinations in December. Address Mr. Paul Foley, deputy director, Department of Occupations and Professions, 1740 Massachusetts Ave., N. W., Washington 6, D. C.

Basic science examinations in October. Address Mr. Foley.

Hawaii For information on examination dates write to Richard Y. Kodama, D.O., secretary, Board of Osteopathic Examiners, 826 Keeaumoku St., Honolulu 14.

Idaho examinations November 9 at Boise. Address Mrs. Nan K. Wood, director, Occupational License Bureau, Department of Law Enforcement, State House, Boise.

Illinois examinations in October. Applications must be filed by the middle of September. Address Mr. Frederic B. Selcke, superintendent, Department of Registration and Education, Capitol Bldg., Springfield.

Iowa basic science examinations October 10 at the Capitol Building, Des Moines. Address Elmer W. Hertel, Ph.D., secretary, Board of Basic Science Examiners, Wartburg College, Waverly.

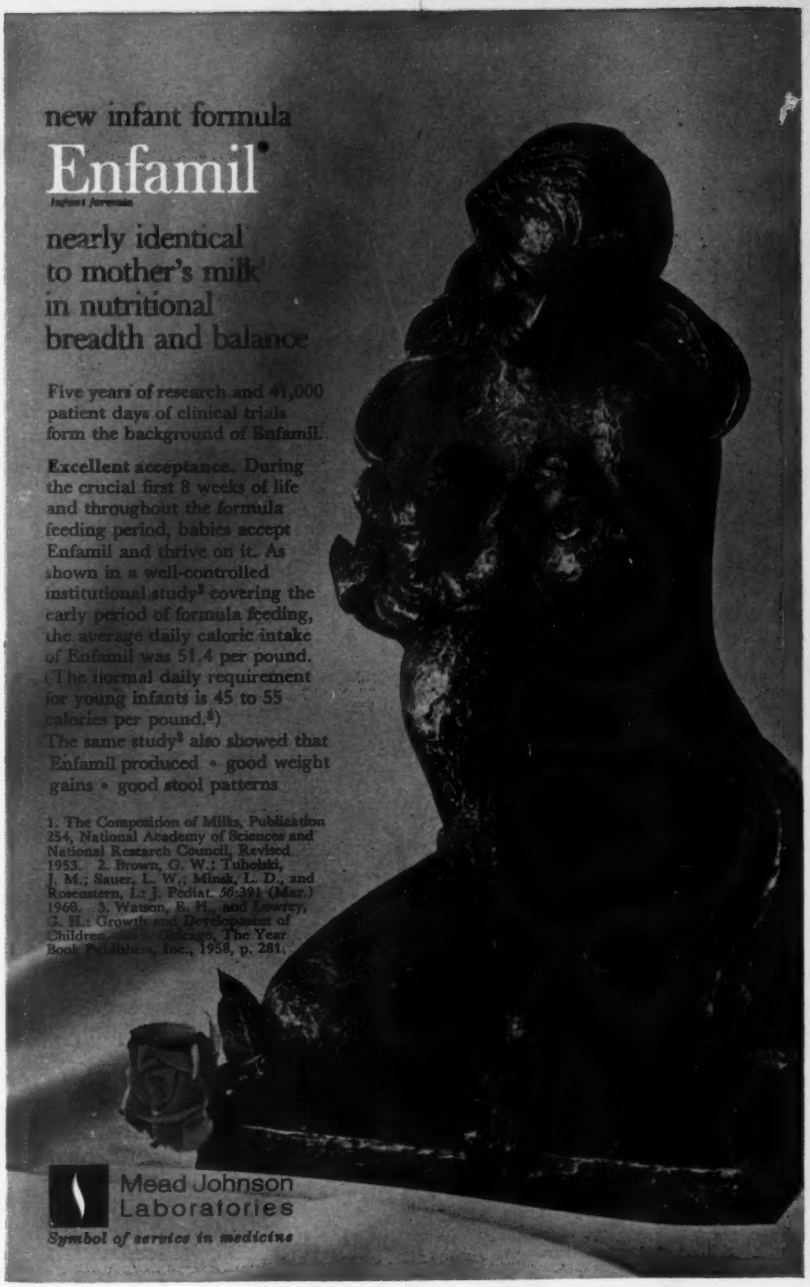
Kansas basic science examinations in November. Address Dr. L. C. Heckert, secretary, Board of Basic Science Examiners, Kansas State College, Pittsburgh.

Maine examinations November 14-15. Address George Frederick Noel, D.O., secretary, Board of Osteopathic Examination and Registration, 20 Monument Sq., Dover-Foxcraft.

Maryland examinations in October. Applications must be filed 10 days in advance. Address Christopher L. Ginn, D.O., secretary, Board of Osteopathic Examiners, 19 W. Mulberry St., Baltimore 1.

Michigan examinations September 12-14. Applications must be filed by September 1. Address Roy G. Bubeck, Jr., D.O., secretary, Board of Osteopathic Registration and Examination, 2851 Clyde Park Ave., S. W., Grand Rapids 9.

Basic science examinations in October. Address Mrs. Anne Baker, secretary, Board


new infant formula
Enfamil
nearly identical to mother's milk in nutritional breadth and balance
Five years of research and 41,000 patient days of clinical trials form the background of Enfamil.
Excellent acceptance. During the crucial first 8 weeks of life and throughout the formula feeding period, babies accept Enfamil and thrive on it. As shown in a well-controlled institutional study[3] covering the early period of formula feeding, the average daily caloric intake of Enfamil was 51.4 per pound. (The normal daily requirement for young infants is 45 to 55 calories per pound.[3])
The same study[3] also showed that Enfamil produced • good weight gains • good stool patterns
1. The Composition of Milks, Publication 254, National Academy of Sciences and National Research Council, Revised 1953. 2. Brown, G. W.; Tuholski, J. M.; Sauer, L. W.; Mirsk, L. D., and Rosenstern, I.: J. Pediat. 56:391 (Mar.) 1960. 3. Watson, E. H., and Lowrey, G. H.: Growth and Development of Children, Chicago, The Year Book Publishers, Inc., 1958, p. 281.
Mead Johnson Laboratories
Symbol of service in medicine

WHENEVER YOU NEED AN ANTIBIOTIC-NYSTATIN COMBINATION...prescribe the only one with the added benefits of DECLOMYCIN® *Demethylchlortetracycline ❖ full activity with lower intake ❖ high sustained activity levels ❖ activity maintained for 24 to 48 hours after the last dose.*

remember **DECLOSTATIN®**

Demethylchlortetracycline and Nystatin Lederle

Request complete information on indications, dosage, precautions and contraindications from your Lederle representative, or write to Medical Advisory Department.

LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

of Examiners in the Basic Sciences, 116 Mason Bldg., Lansing.

Minnesota basic science examinations October 3 at the University of Minnesota, Minneapolis. Address Raymond N. Bieter, M.D., secretary, Board of Examiners in the Basic Sciences, 105 Millard Hall, University of Minnesota, Minneapolis 14.

Montana examinations September 5. Address Warren E. Monger, D.O., secretary, Board of Osteopathic Examiners, Box 64, Dillon.

Nebraska examinations given on request. Address Mr. R. K. Kirkman, director, Bureau of Examining Boards, Department of Health, State Capitol Bldg., Lincoln 9.

Basic science examinations October 3-4. Address Mr. Kirkman.

Nevada basic science examinations October 3. Address Kenneth C. Kemp, Ph.D., secretary, Board of Examiners in the Basic Sciences, Box 9355, University of Nevada, Reno.

New Hampshire examinations September 13-16 at Concord. Address Edward W. Colby, M.D., secretary, Board of Registration in Medicine, State House, Concord.

New Mexico basic science examinations October 18. Address Mrs. Marguerite Cantrell, secretary, Board of Examiners in the Basic Sciences, Box 1522, Santa Fe.

New Jersey examinations October 17-20. Applications must be filed 20 days in advance. Address Vincent Butler, M.D., secretary, Board of Medical Examiners, 28 W. State St., Trenton, 8.

Oregon applications for reciprocity will be considered in October. Address Mr. Howard I. Bobbitt, executive secretary, State Board of Medical Examiners, 609 Failing Bldg., Portland 4.

Puerto Rico examinations September 5. Address Mr. Joaquin Mercado Cruz, secretary, Board of Medical Examiners, c/o Department of State, Box 3271, San Juan.

Rhode Island examinations October 5-6. Address Mr. Thomas B. Casey, Administrator of Professional Regulations, 366 State Office Bldg., Providence.

Basic science examinations November 8. Address Mr. Casey.

South Carolina examinations November 21. Address Ernest A. Johnson, D.O., secretary, Board of Osteopathic Examiners, Box 525, Summerville.

Tennessee basic science examinations given every 3 months. Address O. W. Hyman, M.D., secretary, Board of Basic Science Examiners, 62 S. Dunlap, Memphis 3.

Texas examinations and reciprocity applications considered November 30-December 2. Examination applications must be filed by October 30; reciprocity applications must be filed by September 30. Address M. H. Crabb, M.D., secretary, Board of Medical Examiners, 1714 Medical Arts Bldg., Fort Worth 2.

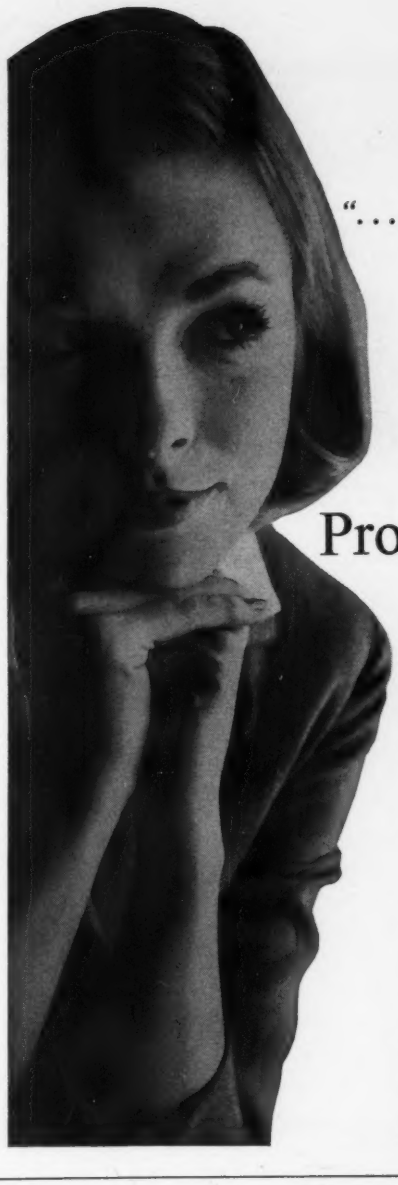
Utah examinations third week in September. Applications must be filed 10 days prior to examinations. Address Mr. Frank E. Lees, director, Registration Division, Department of Business Regulations, State Capital, Salt Lake City 14.

West Virginia examinations in October. Address Donald C. Newell, D.O., secretary, Board of Osteopathy, 137½ Main St., Oak Hill.

Wisconsin examinations in October at Madison. Address Thomas W. Tormey, Jr., M.D., secretary, Board of Medical Examiners, Room 28, 115 S. Pinckney St., Madison 2.

Wyoming examinations October 2 at Cheyenne. Address James W. Sampson, M.D., secretary, Board of Medical Examiners, State Office Bldg., Cheyenne.

Alberta examinations in September at Edmonton. Address Mr. G. B. Taylor,



"... am I pregnant, doctor?"

to give you the answer promptly, even in the early weeks...

Pro-Duosterone®

50.00 mg. anhydrohydroxyprogesterone, 0.03 mg. ethinyl estradiol per tablet

As early as a week after the first missed period, the new, 3-day, oral PRO-DUOSTERONE test (4 tablets daily for 3 consecutive days) permits simple, physiologic diagnosis of pregnancy and secondary amenorrhea. In women menstruating regularly, PRO-DUOSTERONE accuracy approaches 100%[1] weeks before biologic tests for pregnancy can be considered accurate.

- **If the patient is not pregnant,** menstruation will occur within a few days after the administration of the PRO-DUOSTERONE test.
- **If the patient is pregnant,** no progesterone-induced withdrawal bleeding occurs, and the progestational action of PRO-DUOSTERONE may even help protect many pregnancies.

PRO-DUOSTERONE is available on your prescription. Bottles of 24 pink tablets. *Literature on request.*

1. Schwartz, H.A.: Editorial, Minnesota Medicine 42:1279, 1959.

Roussel Corporation, New York 17

Cremomycin® provides rapid relief of virtually all diarrheas

NEOMYCIN—actively bactericidal against a wide range of gram-negative intestinal pathogens, but relatively ineffective against certain diarrhea-causing organisms.

SULFASUXIDINE®, succinylsulfathiazole—an ideal adjunct to neomycin because it is highly effective against Clostridia and certain other neomycin-resistant organisms.

KAOLIN AND PECTIN—coat and soothe the inflamed mucosa, adsorb toxins, help provide rapid symptomatic relief.

Additional information on CREMOMYCIN is available to physicians on request.

MERCK SHARP & DOHME, DIVISION OF MERCK & CO., INC., WEST POINT, PA.

CREMOMYCIN AND SULFASUXIDINE ARE TRADEMARKS OF MERCK & CO., INC.

acting registrar, Office of Registration, University of Alberta, Edmonton.

Saskatchewan examinations in October at Saskatoon. Address Anna Northup-Little, D.O., 2228 Albert St., Regina.

Reregistration of osteopathic licenses

Within 60 days after July 1—Indiana, $5.00 residents; $10.00 nonresidents. Address H. D. Wolf, D.O., treasurer, Board of Medical Registration and Examination, 4840 N. Michigan Rd., Indianapolis.

September 1—Nebraska, $3.00. Address Mr. R. K. Kirkman, Director of Bureau of Examining Boards, State Department of Health, Lincoln 9.

September 1—Ohio, $2.00. Address H. M. Platter, M.D., secretary, State Medical Board, 21 W. Broad St., Columbus 15.

November 1—Rhode Island, $5.00. Address Mr. Thomas B. Casey, Administrator of Professional Regulations, 366 State Office Bldg., Providence.

Examination by National Board

The National Board of Examiners for Osteopathic Physicians and Surgeons, Inc. conducts Parts I and II of its examinations twice each year at the approved colleges. The next dates are November 10-11, 1961, and May 3-4, 1962. Application blanks may be obtained from the secretary of the Board or the dean of the college, and the completed application blank, together with check for the part to be taken, must be in the secretary's office not less than 30 days preceding the examination.

Examinations in Part I consist of anatomy, including histology and embryology; physiology; physiological chemistry; pathology; and microbiology, including immunology.

Part II consists of examinations in surgery, including applied anatomy, surgical pathology, and surgical specialties; neurology and psychiatry; public health, including hygiene; medical jurisprudence; obstetrics and gynecology; pediatrics; osteopathic principles, therapeutics, including pharmacology and materia media.

Part III is an oral and practical examination given under the supervision of a chief examiner who is a member of the Board and by a panel of associate examiners. Subjects covered in Part III are: anatomy; physiology; pathology; osteopathic principles, therapeutics and pharmacology; surgery; ophthalmology and otorhinolaryngology; obstetrics and gynecology; physical and clinical diagnosis; public health and communicable diseases.

These are oral examinations which the candidate may take after having satisfactorily completed the first six months of a 1-year internship in a hospital approved for intern training. Part III is given annually.

The next examinations in Part III will be given at Kansas City April 7-8, and at Philadelphia April 14-15, 1962.

All candidates are reminded that the examinations must be completed within a period of 7 years. Candidates who took Part I in 1955 must take Part III in 1962 or forfeit the right to complete the examinations.

Eligibility requirements are as follows: Part I, satisfactory completion of the first 2 quarters or trimesters of the sophomore year in an approved school of osteopathy; Part II, satisfactory completion of Part I and of the first two quarters or trimesters of the senior year in an approved osteopathic college; Part III, satisfactory completion of Part II and at least 6 months of a 1-year internship approved by the American Osteopathic Association.

Address all communications to Paul van B. Allen, D.O., secretary, 212 E. Ohio St., Chicago 11.

in arthritis...
maximum salicylate benefit
around the clock-day after day-with t.i.d. dosage of

PERSISTIN®

unique formula combines both slow absorption salicylates and fast absorption salicylates for prolonged and immediate effectiveness

PERSISTIN®

Each tablet contains:

Salicylsalicylic acid 7½ gr. (480 mg.) for delayed effects
Acetylsalicylic acid 2½ gr. (160 mg.) for prompt effects

The timed-absorption characteristics of the salicylates in the Persistin formula permit the convenience of t.i.d. dosage to provide 24-hour salicylate effects for the arthritis patient—thus affording pain relief and salicylate benefit on a day-long and night-long basis.

Usual dosage: One Persistin tablet on arising, one eight hours later and two before retiring. Virtually free of gastric distress.

Supplied: Bottles of 50 scored, uncoated tablets.

REFER TO PDR PAGE 813

Sherman Laboratories
Detroit 11, Michigan

1961

Give Today
for tomorrow's health!

Provide Loans for Students / Grants for Research

OSTEOPATHIC CHRISTMAS SEALS

Contribute through your physicians, auxiliary, hospital guild, or The National Osteopathic Foundation, 212 East Ohio St., Chicago 11

Specialty board examinations

Internal medicine examinations October 2-4 at Hotel Mark Hopkins, San Francisco, California. Address Glennard E. Lahrson, D.O., executive secretary, American Osteopathic Board of Internal Medicine, 400 40th St., Oakland 9, Calif.

for the uncomfortable patient for the distraught patient for the overtired patient

relaxing, restful sleep

without barbiturates, bromides or narcotics

sominex

THE SAFE SOMNIFACIENT

SOMINEX contains no barbiturates, bromides or narcotics. It is designed specifically as a bedtime sedative, and should not be used as a daytime tranquilizer.

In SOMINEX, the safe sedative action of methapyrilene is enhanced by scopolamine and salicylamide. The total effect is one of safe sedation without hang-over or danger of habituation. No prescription is required.

Each SOMINEX tablet provides: Methapyrilene HCl, 25 mg.; scopolamine aminoxide HBr, 0.25 mg.; salicylamide, 200 mg. *Dosage:* 2 tablets one-half hour before retiring. Some patients will require only one tablet. *Supplied:* vials of 18 tablets.

For a complimentary supply, please address your request to: Dept. SB, J. B. Williams, Inc., 711 Fifth Avenue, New York, N.Y.

Impact of public health on society*

Ruth B. Freeman, R.N., Ed.D.†

Public Health action is at least as old as recorded history. Wherever men have lived together, they have set up regulations to govern their health practices. However, the modern public health movement—a broad-scale, concerted community action—is of more recent origin. It has grown out of the great social changes of the industrial revolution and out of the great political struggles that have brought more and more freedom and opportunity to the peoples of the world. Now public health is moving into a new era, an era of space, of discovery, of kaleidoscopic change. It is opportune to think again of our mission as public health workers and of the impact of our profession of public health on society today.

If you ask people what they think about this task in which we are engaged, their responses will vary all the way from "Public health does good," to "Really, the job of public health is over. We have licked communicable disease and our sanitation problems, and we need only a minimal maintenance service." Many of our professional statements are equally vague or limited in the concept of public health that they present to the public. Descriptions of programs tell what is to be done and what is done, but rarely is there any mention of why public health action is so essential. The objectives of public health are frequently not clear, and all too often they are stated in terms that are either vague or narrowly operational, "to provide maternal and child health supervision" or "to control tuberculosis," for example.

To the question, Why public health action? everyone comes up with a different answer. To me, the mission of public health is to bring to bear in a synthesized way all available scientific, educational, and social skills, knowledges, and discoveries so that they become operative promptly as agents for the betterment of individual, family, and community health. You will notice that this does not say the mission of the public health department or of public health workers, but rather of the total public health movement. The action to bring these forces to bear for social betterment may be taken by public health departments, voluntary agencies, private physicians, industry, or even individuals, their families, and their neighbors. Any or all of these may become part of general public health action. This is one of the unique aspects of our work, that it involves the community as a whole, just as it benefits the community as a whole.

The objective in public health is in some way to put to work for people what we have learned about the forces that motivate and activate groups, about tranquilizers, about the relation of oxygen therapy to retrolental fibroplasia, about the genetic factors that influence the drug

*Reprinted from *Public Health Reports*, April 1961.

†Dr. Freeman is associate professor of public health administration at the Johns Hopkins University. She delivered the address from which this article was taken before the Puerto Rico Public Health Association in San Juan, February 3, 1960, while she was a temporary staff member of the Rockefeller Foundation.

DRAMATIC
physical and emotional relief in
ANGINA PECTORIS

'round-the-clock protection against both pain and fear

COROVAS
Tymcaps

COROVAS is a nontoxic, uniform-acting, long-acting vasodilator to control or prevent attacks of angina pectoris. One COROVAS Tymcap upon arising provides up to 12 hours of continuous coronary vasodilation, and another COROVAS Tymcap before the evening meal affords maximum protection against seizures all night. COROVAS alleviates the associated fear of pain. Reduces the need for emergency nitroglycerin. Safe and effective for long-term therapy.

SUPPLIED—Boxes of 60 and 120.

PROLONGED, SUSTAINED ACTION OF VASODILATING PENTAERYTHRITOL TETRANITRATE (PETN) 30 MG., AND SEDATIVE SECOBARBITURIC ACID 50 MG. IN EACH COROVAS TYMCAP.

AS WITH ALL NITRATES, USE WITH CAUTION IN GLAUCOMA.

AMFRE GRANT, INC.
Brooklyn 26, N. Y.

resistance of certain organisms—all the diversified knowledge available. Some idea of the effect organized action may have on the lag between discovery and application is evident from a comparison of, for example, the time it took for the discoveries of Holmes and Semmelweiss to reduce the death rate of parturient mothers with the time it took to get the Salk vaccine from the laboratory into the arms of children.

WHAT IS PUBLIC HEALTH?

Looking further at this job of ours, it may be profitable to distinguish among public health, public health practice, and public health services. Public health, stated simply, may be conceived of as a state of well-being of the community, including the physical, mental, and social aspects of health. Basic to public health is the health of the individuals that make up the public. Our present-day concept of wellness, as contrasted to the concept of absence of disease, as a goal sets a standard of health both different from and broader than that of the past. We are seeking optimal adaptation to disability or disease as well as freedom from preventable disease or illness, freedom from disabling ways of thinking or behaving as well as freedom from poor posture or inadequate nutrition. Under this definition, personal isolation, for example, or distorted values that prevent people from functioning as happy individuals and social beings would become part of the health picture.

However, community health is more than the sum total of all individual health. In our country, the family is a focal social unit, and the health of the family is considered essential for our national well-being. If family members lack mutual support or are so tightly tied to one another that they are smothered by mutual over-dependence, we may have healthy persons in a family which is not healthy. Community health is even broader in its implications than family health. In addition to healthy individuals and healthy families, the healthy community must also have the facilities, the group character, the kinds of interrelationships within the community as a whole that make it possible to maintain health. For example, healthy people living next to a polluted stream are living in an unhealthy community because there is a constant threat to health.

People in a community who have not learned to work together as neighbors will have trouble handling their community health problems effectively. The self-help housing program here in Puerto Rico, for example, is contributing to health not only by creating a better environment, but also by fostering neighborly interdependence and developing in the people an ability to work constructively together that should carry over to such problems as helping a neighbor recognize the need for medical care, or providing friendly supporting services needed by the long-term patient, or understanding the need for tax support for health services to reach all the people.

What we want, then, is a community in which responsible, knowledgeable individuals protect and conserve their own and their family's health and contribute to the maintenance of the health of their neighbors and of their community through action, through tax support, and through their own personal support and understanding.

When we look at this goal, it becomes apparent that public health practice must be more than the carrying out of a few preventive medical procedures. The job requires the application of multiple professional skills for community diagnosis and the application of medical, educational, social, or environmental therapy for maintaining health, for mobilizing the public, for assuring the necessary health action.

If this premise is accepted, it becomes obvious that public health cannot be the province of any one profession. Public health is not simply medical care in which different skills are needed, nor is it health education alone. Community diagnosis, one of the fundamental skills of public health, entails knowledge of the existence of disease and of the level of susceptibility to certain types of health problems. Susceptibility to tuberculosis, for instance, may be shown by the epidemiological characteristics of the disease; or to diphtheria, by the immunization status; or to juvenile delinquency, by pre-

ACE
an
"ace"
is
only
an
ACE
* when it can stand up to punishment
For greater resistance to dry heat... B-D ACE Rubber Elastic Bandage incorporates a newly developed, heat-resistant extruded latex rubber. As a result, ACE withstands 320° F. dry-heat sterilization... maintains its elasticity longer than ordinary bandages. And remember, only ACE provides a balanced weave of warp and woof threads to assure continuous uniform support.
* Be sure you get the elastic bandage you order. ACE is made only by B-D.
B-D
BECTON, DICKINSON AND COMPANY · Rutherford, New Jersey
B-D and ACE are registered trademarks.

delinquent behavior or social disorganization. Community diagnosis requires, too, knowledge of the competence of the population in relation to its own health care, as well as the adequacy and extent of private medical care, the number and distribution of hospitals and diagnostic facilities, and how frequently they are used and by whom. The methods by which people communicate with one another, the ways in which they take action on community problems, and the economic and social competence of the community are also essential components of the community's health. Only when the community is seen "in the round" in this way is it possible to plan effectively for the public health program the people need.

Public health services have been described in so many different ways that it would be impossible to present fairly all the points of view. To me, public health service is whatever health service the public decides can best be provided through organized rather than individual effort. Public health service is not limited to preventive care, since preventive care is an integral part of all medical practice, wherever it may be and under whatever auspices. There is no list of five or six or seven areas that are the only appropriate public health activities, and the size of a problem cannot be considered a legitimate criterion of its appropriateness for public health action.

While it is the public's responsibility to decide what it prefers to provide as a group, it is the responsibility of the public health profession to provide information pertaining to needs and ways of meeting them so that the public is able to make a wise decision. It is also the responsibility of the profession to control professional practice, for this is not a matter in which the public is competent. For example, it is a public responsibility to decide whether vaccination will be provided through community clinics supported from tax funds or primarily by individual medical practitioners. It is the responsibility of the professional group to see to it that the vaccination procedures are safe and properly tested, that those who administer the vaccine are qualified, and that the public is informed of the probable outcomes of the program that is undertaken.

ITS EFFECTS ON SOCIETY

If we conceive of public health practice and services in this broad context, it is obvious that they will have a profound impact on the general welfare. If a man is cured of active tuberculosis so that he can maintain himself and his family, and if the family is kept intact while at the same time the community is protected from infection, the hazard of related illness or emotional stress is reduced, as is the likelihood of continuing indigence. This result represents a good investment. If we think of the plus factors that may be gained through high-quality public health services in tuberculosis, we may find that the family is strengthened, that teaching regarding general hygiene protects the family not only in relation to tuberculosis but in other ways as well, that through their experience with this disease they get a better understanding of how to use hospital and diagnostic facilities for other types of health care. The tuberculosis program addressed to the general public may not only inform people about tuberculosis and motivate them to obtain early diagnosis but may, in addition, teach them about the overall public health program and their part in promoting it.

Public health services may also have a definite impact on the values of people served. To the degree that a public health worker considers the patient as a person and shows a willingness to listen to and learn from him, and to the degree that the public health worker expects the patient to contribute to his own, his family's, and his community's help, public health services can serve to develop values that are consistent with our democratic way of life.

Public health may also have a decided impact on the education of the professional group that constitutes the public health team. Public health action requires the synthesis of efforts of many individuals and groups. This raises the question of how we can best teach professional workers to function in this integrated way. What requirements does this set up for orientation of professional workers to the activities of those in different fields of work? For joint learning? For relating and phasing of professional education in the several fields so that we have the personnel we need when we need them? For

"UPSET STOMACH" ON DIGITALIS 52-year old male had rheumatic heart disease, cardiomegaly Grade II, auricular fibrillation, mitral stenosis, mitral insufficiency, and was in class III-C. For 17 months he had been in failure. Three grains of digitalis daily were required for effective maintenance therapy. When the patient began to complain of frequent "upset stomach", he was placed on digitoxin, with an alternating 0.1 and 0.2 daily maintenance dose. Nausea became very severe after two months, and digitoxin was decreased to 0.1 mg. daily. Congestive failure increased and rehospitalization was necessary. Patient was given GITALIGIN, 0.5 mg. q.i.d. for two days, then 1.5 mg. daily for six weeks, followed by 1.0 mg. per day with 1.5 mg. every third day. Failure was effectively controlled without toxicity.[1]

"DIGITALIS TOXICITY IS SEEN WITH INCREASING FREQUENCY TODAY..."[2]

for maximal digitalis activity with minimal toxicity

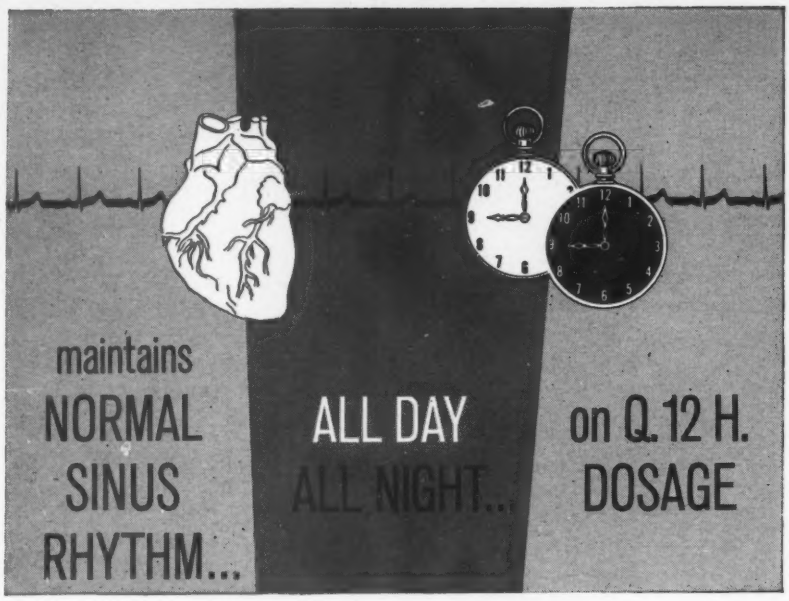
Gitaligin®†

"...patients who became toxic very readily with other agents could later be satisfactorily digitalized with gitalin (GITALIGIN)."[2]
Wider margin of safety—frequently effective in patients refractory to other digitalis glycosides • broader clinical utility—therapeutic dose only ⅓ the toxic dose • faster rate of elimination than digitoxin or digitalis leaf. □ Supplied: 0.5 mg. scored tablets—bottles of 30 and 100.

1. Dimitroff, S. P. et al.: Ann. Int. Med. 39:1189, 1953. 2. Pastor, B. H.: GP 22:85, 1960.

†amorphous gitalin, White

White WHITE LABORATORIES, INC. • Kenilworth, New Jersey



QUINAGLUTE®
DURA-TABS®
exclusive oral Sustained Medication*
Quinidine Gluconate 5 gr. (0.33 Gm.)

IN CARDIAC ARRHYTHMIAS[1-10]

Maximum efficacy: maintains effective quinidine blood levels all day, all night. **Better tolerated:** because quinidine gluconate is 10 times as soluble as the sulfate, and only part of daily Dura-Tab dosage contacts gastric mucosa. **Maximum convenience:** given q. 12 h.—no night dosage needed.

DOSAGE: for conversion of auricular fibrillation to normal sinus rhythm, in most cases, 2 Dura-Tabs 3 or 4 times a day, for 2 to 3 days; longer periods are required in some patients. For maintenance, 2 Dura-Tabs q. 12 h. in most patients... Bottles of 30, 100 and 250 Quinaglute Dura-Tabs.

For SAMPLES and complete literature[1-10] giving indications, cautions, etc., write

PDR Page 821

WYNN PHARMACAL CORPORATION
Lancaster Ave. at 51st St., Philadelphia, Pa.

*U.S. Patent 2,895,881

also available INJECTABLE QUINAGLUTE

example, as the character of medical practice changes, new kinds of obligations may be placed on nurses, on physical therapists, on medical social workers, and on health educators. Unless basic and continuing education in these four related fields is adapted to developments in medicine, the products of professional schools in those fields will not be ready to work effectively with one another.

Public health services may also have a distinct impact on community social structure. Public health programs designed so neighbors can help neighbors produce social patterns that may carry over to other things. As people group together to build a house or dig a well or to take a class in baby care or first aid, they learn a way of doing things that may remain with them when the problem is one of civil defense or epidemic or a way that will make it easy to work together for a diagnostic clinic or a mass vaccination program.

The influence we exert as public health workers may be individual as well as professional. The way in which we do things ourselves, as well as what we do, may have an effect on those we serve.

The ways in which we act in concert with members of other professions through our public health associations and through our individual disciplines and their associations also have importance in strengthening the impact of public health services on society. Membership in an association may mean simply attending annual meetings and social events. Or it may mean becoming involved with the concerted thinking, decisions, and actions that are needed if the organization is to function as an important social force. Through the channels of our organizations we can do much not only to bring to the public the best possible health care but also to enlarge our own understanding and to use our personal as well as our professional skills to contribute more and more to the general welfare. In this way we extend our horizons and deepen our perceptions so that in the future our profession of public health can truly fulfill its bright promise.

Recent advances in geriatrics*

G. Halsey Hunt, M.D.†

A great deal of confusion exists between two aspects of aging, the biological process of aging and aging as we commonly observe it in old people. To distinguish between the two, I suggest that we need both better definitions and new terms. For the past year or so I have been using the following definition of the biological aging process as the basis for my own thinking in this field.

The biological aging process is the genetically and/or developmentally determined, progressive, and essentially irreversible diminution with the passage of time of the ability of a living organism or of one of its parts to adapt to its environment, manifested as diminution of its capacity to withstand the stresses to which it is subjected, and culminating in the death of the organism.

Some people consider that this is a defeatist and pessimistic point of view because certain beneficial things happen with the passage of time. This is true, of course, but let us call beneficial developments by some other name, maturation or development, for example, but let us not designate as "aging" everything that happens to a living organism with the passage of time. I think we will get much further much faster if we take a definition that makes the straightforward assumption that each individual's clock is sometime going to run down, and that it is going to run down regardless of the incidence of overt illness. Pragmatically, it is sometimes hard to distinguish

*Reprinted from *Public Health Reports*, December 1960.

†Dr. Hunt is chief, Division of General Medical Sciences, National Institutes of Health, Public Health Service, Bethesda, Md. The article is based on a paper presented at the American Life Convention, White Sulphur Springs, W. Va., May 31, 1960.

"...TO AID THE PHYSICIAN"

This principle guides the design and construction of each OTC Surgical Support and Orthopedic Appliance, "... to aid the physician" in securing the desired therapeutic effect, consistent with the patient's comfort. Each OTC support must merit the physician's approval and the patient's acceptance, for each support is "Designed for Doctors' Prescriptions."

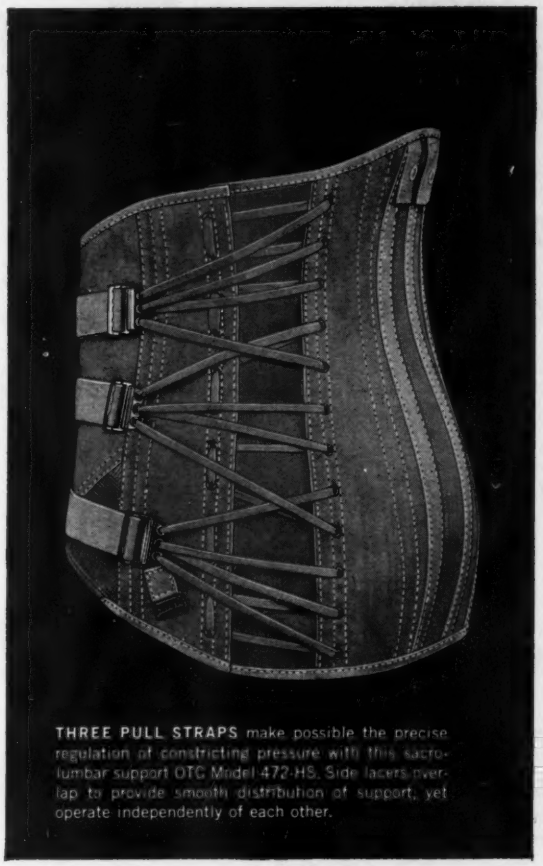
Write for the name of the qualified OTC dealer in your area ... ask for the OTC reference catalog.

Orthopedic Therapeutic Corrective

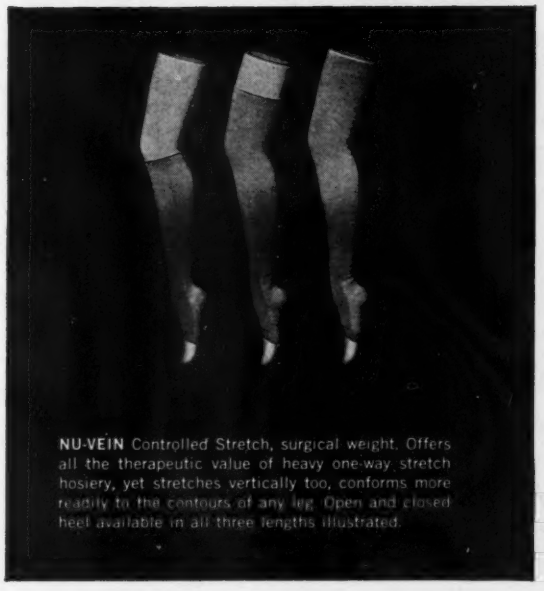
OTC

Supports • Surgical Hosiery
Orthopedic Appliances • Specialties

division of surgical appliance industries, inc.
Dept. B
28 W. 7th St., Cincinnati 2, Ohio
Branches: New York, San Francisco, Ottawa



THREE PULL STRAPS make possible the precise regulation of constricting pressure with this sacro-lumbar support OTC Model 472-HS. Side lacers overlap to provide smooth distribution of support, yet operate independently of each other.



NU-VEIN Controlled Stretch, surgical weight. Offers all the therapeutic value of heavy one-way stretch hosiery, yet stretches vertically too, conforms more readily to the contours of any leg. Open and closed heel available in all three lengths illustrated.

Deltasmyl®

gives safer steroid protection from asthma

The aim of therapy in asthma should be relief of bronchospasm by means of decongestant and bronchodilating agents *plus prednisone*. When long-continued prednisone treatment is desirable, "the use of bronchodilator medication and other allied drugs should be continued *in order to decrease the dosage of the steroid hormone to a minimum.*" (Barach, A.L. and Bickerman, H.A.: Pulmonary Emphysema, Baltimore, The Williams and Wilkins Company 1956, p. 523.)

One DELTASMYL tablet provides the smallest, safest dose of prednisone (1.5 mg.), augmented by theophylline (120 mg.), ephedrine HCl (15 mg.), and phenobarbital (8 mg.), protects against asthma for about 4 hours. Not more than six tablets should be taken in 24 hours. Bottles of 50 tablets.

ROUSSEL — Roussel Corporation, 155 East 44th St., New York 17

the effects of illness from the biological aging process, but conceptually I think it can be done. There now seems to be fairly general agreement that coronary heart disease or atherosclerosis should not be considered to be part of the aging process. Atherosclerosis occurs with increasing frequency with increasing years, but it is not part of the built-in mechanism of aging. It develops in early life in some people and essentially not at all in others.

I think that it would be particularly useful if we could develop a new name for the biological aging process, which would have fewer emotional overtones. For a time I thought "bio-entropy" would fill the bill, since this carries the implication that living organisms tend eventually toward disorder. When I suggested this to some of my scientific friends, however, I was reminded that "entropy" describes a state rather than a process and that we will have to seek further for the new word we need.

What we are really concerned with in the basic biological process of aging is the influence of the passage of time. Possibly "chronobiology" would serve as the generic descriptive term for the study of the effect of time on living systems. We then might use the term "anachronobiology" for the study of the processes of growth, development, and maturation, and "catachronobiology" for what I have defined previously as the biological aging process. These terms are admittedly clumsy, but as in legal phraseology, it is sometimes necessary to be somewhat clumsy in order to be precise.

SCOPE OF THE PROBLEM

The Bureau of the Census estimates that the total population of the United States on July 1, 1959, including Armed Forces overseas, was 177,103,000, of whom 15,380,000 or 8.7 per cent, were 65 years and over.[1] The population 65 years and over has increased by about 3.2 million, or 26.1 per cent, since 1950. There were 12.2 million persons 65 and over in 1950, and fewer than 9 million in 1940. During the 1950's, this group increased by about 350,000 each year, or nearly 1,000 every day.

In any context, the problems of 15 million people who constitute almost 9 per cent of the population deserve respectful attention. In the practice of medicine, however, we are already faced with the fact that the great majority of fatal illnesses occur in mature individuals. The tremendous advances in medicine and sanitation in the last 50 to 75 years have largely eliminated the great scourges, the acute infectious diseases and tuberculosis, which formerly brought death to so many infants and children and young adults.

Fatal illness is becoming increasingly the prerogative of the older age groups. In 1955, 56.5 per cent of the deaths in the United States occurred in people over 65, and another 25.8 per cent occurred in people 45 to 64.[2] In other words, 82.3 per cent of all deaths in 1955 occurred in people who were 45 or older. In 1920, only 50 per cent of deaths occurred in this same age group. If we equate death rate with serious illness, which we can probably do with only minor reservations, four-fifths of all serious illnesses now occur in this age group. Already, therefore, all physicians except obstetricians and pediatricians have to pay more and more attention to people 45 and older.

GERIATRICS AS A SPECIALTY

This leads to the question of whether geriatrics should be developed as a separate specialty of medicine, complete with its own department in the medical schools. At present geriatrics is used rather loosely and usually refers to a sphere of interest rather than to a definitive specialty. Arguments can be advanced on both sides of the question as to whether or not it should become a recognized discipline. The principal arguments in favor of such a development are the sheer numbers of older people in the population and the fact that physicians and others have to be specially trained to give older people the proper attention.

The principal arguments against it are that most of the diseases and infirmities of age have their beginnings in middle life or even earlier (which leads some observers to conclude that the best "geriatrics" is practiced upon young and middle-aged adults); that it would cut across all established specialties except

ANNOUNCING... A POTENT ANTIDEPRESSANT WITH EFFECTIVE ANTI-ANXIETY PROPERTIES...

NEW

ELAVIL®

AMITRIPTYLINE HYDROCHLORIDE

MSD

new...a potent antidepressant with effective anti-anxiety properties

ELAVIL

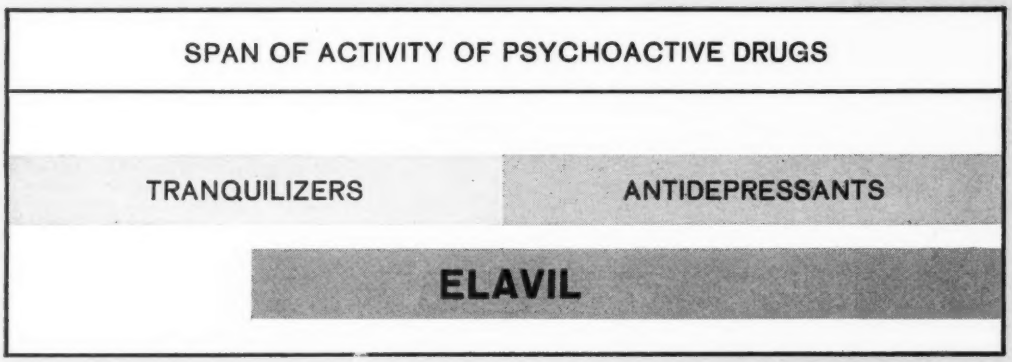
AMITRIPTYLINE HYDROCHLORIDE

RELATIVE UTILITY IN MANAGEMENT OF DEPRESSED PATIENTS

	TARGET SYMPTOMS OF DEPRESSION:			
Class of compounds	*Anxiety*	*Insomnia*	*Depression*	*Over-all relief of symptoms*
TRANQUILIZERS	"Failure of the tranquilizers to produce satisfactory results is due in many cases to their being prescribed for depression, especially depression masked by the more prominent symptoms of anxiety. The underlying depression may be deepened."[1]			+ —
ANTIDEPRESSANTS			"CNS stimulants and anti-depressants, if given to anxious patients, will increase the anxiety...."[1]	+
ELAVIL	"... this drug [ELAVIL] acted both as a tranquilizer and as an anti-depressant...."[2] Many physicians customarily treat anxious or depressed patients with a combination of an antidepressant and a tranquilizer. This is seldom necessary when prescribing ELAVIL because it has both antidepressant and anti-anxiety properties.			++

AVIL®

effective in patients with depression...
particularly useful in those with predominant symptoms of anxiety and tension...provides prompt relief of anxiety and insomnia associated with depression



INDICATIONS: manic-depressive reaction – depressed phase; involutional melancholia; reactive depression; schizo-affective depressions; neurotic depressive reaction; and these target symptoms: anxiety; depressed mood; insomnia; psychomotor retardation; functional somatic complaints; loss of interest; feelings of guilt; anorexia. May be used whether the emotional difficulty is a manifestation of neurosis or psychosis,[4] and in ambulatory or hospitalized patients.[3, 4, 5]

USUAL ADULT ORAL DOSAGE: Initial, 25 mg. three times a day, until a satisfactory response is noted. Many patients improve rapidly, although some depressed patients may require four to six weeks of therapy before obtaining maximum benefit. In severely depressed patients, as much as 150 mg. per day may be given. **Maintenance,** 25 mg. two to four times a day. Some patients may be maintained on 10 mg. four times a day. The natural course of depression is often many months in duration. Accordingly, it is appropriate to continue maintenance therapy for at least three months after the patient has achieved satisfactory improvement in order to lessen the possibility of relapse, which may occur if the patient's depressive cycle is not complete. In the event of relapse, therapy with ELAVIL may be reinstituted.

ELAVIL is not a monoamine oxidase (MAO) inhibitor. No evidence of drug-induced jaundice or agranulocytosis has been noted. Side effects (drowsiness, dizziness, nausea, excitement, hypotension, fine tremor, jitteriness, headache, heartburn, anorexia, increased perspiration, and skin rash), when they occur, are usually mild. However, as with all new therapeutic agents, careful observation of patients is recommended. As with other drugs possessing significant anticholinergic activity, ELAVIL is contraindicated in patients with glaucoma.

SUPPLY: Tablets, 10 mg. and 25 mg., in bottles of 100. **Injection** (intramuscular), 10 mg. per cc., 10-cc. vials.

REFERENCES: 1. Perloff, M. M., and Levick, L. J.: Clinical Med. 7:2237, Nov. 1960. 2. Freed, H.: Am. J. Psychiat. 117:455, Nov. 1960. 3. Dorfman, W.: Psychosomatics 1:153, May-June 1960. 4. Ayd, F. J., Jr.: Psychosomatics 1:320, Nov.-Dec. 1960. 5. Barsa, J. A., and Saunders, J. C.: Am. J. Psychiat. 117:739, Feb. 1961.

Before prescribing or administering ELAVIL, the physician should consult the detailed information on use accompanying the package or available on request.

MSD MERCK SHARP & DOHME, DIVISION OF MERCK & CO., INC., WEST POINT, PA.

ELAVIL IS A TRADEMARK OF MERCK & CO., INC.

SWISS TESTS INDICATE DENTAL CARIES IN CHILDREN CAN BE REDUCED AS MUCH AS 84.8% WITH CONTROLLED USE OF SODIUM FLUORIDE TABLETS*

IN YOUR PRACTICE, SUGGEST . . .

KARIDIUM®

TABLETS • LIQUID

FOR THE INDIVIDUAL *SYSTEMIC* CONTROL OF DENTAL CARIES IN CHILDREN . . .

Thousands of physicians and dentists are prescribing KARIDIUM for use in rural areas; in cities where community fluoridation has not begun; and for patients where rampant caries is a serious problem. It has also been used with success, prenatally.

For HOME FLUORIDATION, one tablet (or 8 drops liquid Karidium) in a quart of water provides the recommended fluoride concentration — one part per million. Karidium may also be used with fruit juices, milk, formula or taken as other solid medication.

Chemically pure sodium fluoride is the active ingredient in a 1.5 grain tablet (8 drops liquid). Each tablet or 8 drops liquid yields 1 mg. fluoride ion. (Karidium is not indicated in a strict salt free diet.)

Parents should be instructed that sodium fluoride should be taken conscientiously throughout the period of tooth formation for maximum reduction in tooth decay.

Complete schedules, literature and clinical samples available. Karidium is patented in U.S.A. and Canada.

Supplied: Tablets, bottles of 180 and 1000.
Liquid, 60 cc. plastic dropper bottles.

* Hall, E. W., "The Family Doctor & Preventive Dentistry" G.P. XXII:6, Dec. 1960

The LORVIC Corporation

5553 EASTON AVE. • ST. LOUIS 12, MO.

Canada: Professional Pharmaceutical Corp., Montreal 26, Quebec
Far East: Dreyer & Co., Ltd., 201 Alexandra House, Hong Kong

obstetrics and pediatrics; and that a "good doctor" for patients of 40 can be an equally "good doctor" for patients of 80 if he has the right attitude, which means giving them real attention and good medical care rather than just "tea and sympathy."

I have probably made it obvious that I lean strongly in the direction of not establishing geriatrics as a separate specialty, although in each community a few doctors may wish to identify their interests completely with care of the elderly and become known as geriatricians. I think all doctors except obstetricians and pediatricians should specifically concern themselves with studying and coping with the problems of the older age groups. They should all make specific efforts to prevent the development of disability insofar as this is possible and to treat disease and disability when they occur.

Although the aging process may be differentiated conceptually from disease processes, both types of process should be treated. Physicians should treat the aging process by conditioning the patient psychologically to accept and live with the fact that he is aging and to make the most of his remaining abilities. Disease should be treated vigorously, not simply to prolong life, but to give the patient an opportunity for a better life. It is important that when disabilities (including senile brain changes) do appear, patients be given the benefit of modern rehabilitation techniques. These may be as simple as urging and assisting old people to get out of bed for a time every day—primarily to permit them to carry out the activities of daily living. Patients should be encouraged to exercise their minds and their bodies. Possibly the greatest single advance in the practice of geriatrics in recent years is recognition of the degree to which senile bedridden patients can be rehabilitated.

Since the health status of people in old age is largely the result of a lifetime of habits of living, it is important that we all study ways and means of getting people of all ages to adopt habits of living that will promote the highest level of health. I regret to say that even members of the medical profession are frequently lax in putting into practice what they know about the promotion of good health.

I should like to quote from a statement before the House Appropriations Subcommittee by Dr. Lewis Thomas, chairman of the department of medicine, New York University College of Medicine:[3]

> What will it be like in the year 2000? In 1920 the year 1960 must have seemed like a tremendous distance away, but here we are. There are, in fact, more of us here now, in sheer numbers, than ever before in history. And if there is any certainty in human affairs today, it is the certainty that there will be still more of us, a staggering number of us, in 2000.
>
> I do not believe in the inevitability of human disease. There is nothing preordained about senile psychosis, any more than there was about childbed fever a century ago. Cancer is not a natural aspect of the human condition, nor is heart disease, nor epilepsy, nor heroin addiction, nor multiple sclerosis, nor insanity, nor blindness, nor any of the lists of maladies which plague us today. Aging may be inevitable, and death is a part of nature, but disease is not, or needn't be, for humans. We have got to become a healthy species. This, it seems to me, is the task for medical research in the years that lie ahead, not for our own comfort, not for our remote posterity, but for the people who are the same distance from us in time as we are from 1920.

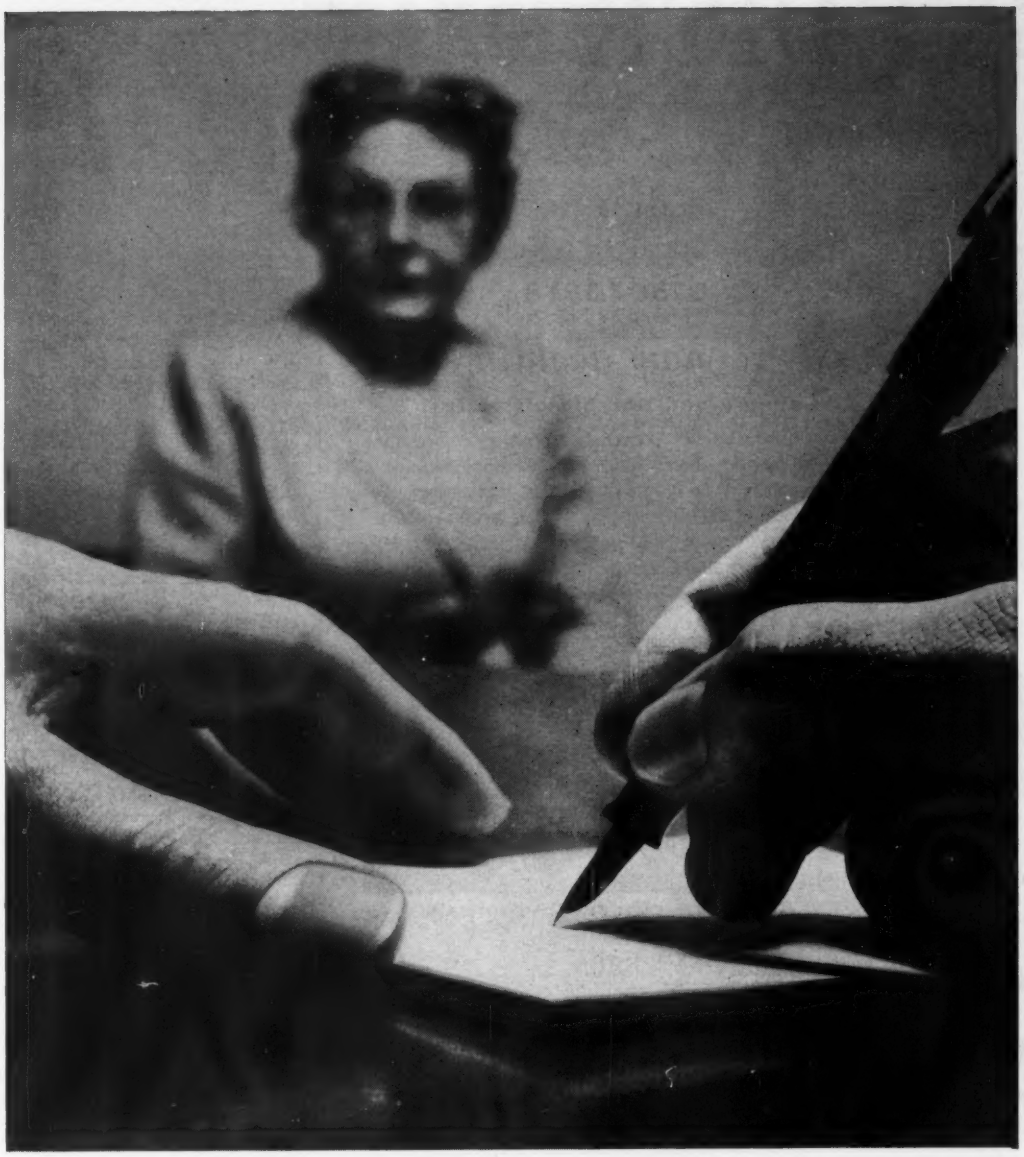
SPECIFIC ADVANCES IN GERIATRICS

Before discussing some specific recent advances that are more or less directly related to geriatrics, I should like to mention the recently published "Handbook of Aging and the Individual; Psychological and Biological Aspects." Some 30 authors contributed to this book, which was edited by Birren. It is a comprehensive readable compendium of existing knowledge about aging in the psychological and biological fields.[4]

For the purposes of this discussion, I have picked a number of representative articles culled from those written during the past year or two by the scientists listed in "Activities of the National Institutes of Health in the Field of Gerontology, January 1959." These papers cover the principal groups of pathological conditions other than cancer, which is a large subject in itself. In addition, I am excluding all studies on the basic biological aging process. Let me describe these studies briefly.

Atherosclerosis and Related Conditions

• Stamler,[5] discusses the epidemiology of



"and when you need a laxative..." Caroid and Bile Salts Tablets relieve temporary constipation without harsh, explosive action, through their unique, 3-way physiologic effect. (1) Caroid, a potent enzyme, aids protein digestion. (2) Bile Salts help overcome biliary stasis and increase the flow of necessary bile into the digestive tract. (3) A balanced combination of mild laxative ingredients stimulates peristalsis, helps restore normal bowel tone. Two tablets, taken at bedtime, will bring your patient gentle, effective relief next morning.

CAROID® & BILE SALTS TABLETS

American Ferment Division, Breon Laboratories Inc., New York 18, N. Y.

Refer to Page 543 — Physicians Desk Reference

BURDICK
photomotograph

a diagnostic aid in metabolic disorders

now acclaimed

"a simple and reliable office test"

Recently introduced (Jan. '60), reports from every corner of the country offer clinical proof that the **FM-1 Photomotograph** is a reliable office test for thyroid dysfunction. Nationally known endocrinologists, medical schools, hospitals and research institutions have used the FM-1 with complete success. Utilizing the Achilles tendon reflex test, the FM-1 provides the simplest and fastest method for diagnosing myxedema yet devised.

FM-1 PHOTOMOTOGRAPH

Ask your Burdick dealer to demonstrate the Photomotograph, or write us for full information

Burdick

THE BURDICK CORPORATION
MILTON • WISCONSIN

Branch Offices: NEW YORK • CHICAGO • ATLANTA • LOS ANGELES
Dealers in all principal cities

atherosclerotic coronary heart disease in an excellent summary article with a long bibliography. He comments that while it is perfectly correct to say that no one can definitively predict whether a given person will or will not develop clinical coronary heart disease within the next year or two, long-term prognostications of the actuarial type can be made. Some will be false positives or false negatives, but in general, high-risk individuals can be identified, with the consequent possibility of successful prophylactic intervention.

Based on recent investigations, it is becoming quite possible to estimate the chances of high-risk individuals in specific quantitative terms. It can be roughly estimated that a low-risk middle-aged man, normal in weight, blood pressure, and serum cholesterol, has 1 chance in 20 of developing clinical coronary heart disease during the age period 45-64. In contrast, a middle-aged man with two or three abnormalities (obesity, hypercholesteremia, hypertension) stands almost one risk in two. These are markedly different risks.

The critical question is whether the risk in high-risk subjects can be prophylactically reduced by correcting defects. The defects are amenable to partial or complete correction by relatively simple medical-hygienic means, the decisive one being dietotherapy. It is not yet known definitely, however, whether the risk of coronary heart disease can be significantly lowered by correcting these defects, although the findings of the life insurance companies on the positive results of correcting obesity are highly suggestive in this regard.

O'Neal and co-workers[6] report that arterial thromboses with myocardial and renal infarcts occur in a large percentage of rats fed a known atherogenic diet to which are added large amounts of saturated fats. Thromboses occur before the formation of significant local intimal lesions, indicating that some hematologic factor is involved.

The same authors discuss the pathogenesis of atherosclerosis and myocardial infarction in a further report of their experimental studies in rats.[7] Among 178 rats fed cholesterol, thiouracil, butter, and sodium cholate, 45, or 25 per cent, developed myocardial infarcts.

Davis and associates[8] report studies of cholesterol synthesis in the human liver. They conclude that in man the liver supplies a relatively small part of plasma cholesterol, with the extrahepatic tissues being a much more important source than is currently generally believed.

Spain and associates[9] report on the effects of estrogens on resolution of local cholesterol implants. They found that intramuscularly administered estrone in rabbits and mice enhances the resolution of local subcutaneous implants of absorbable gelatin sponge saturated with cholesterol. This occurred in the absence of any alterations in serum cholesterol levels.

Davis[10] comments that the ability of the clinician to demonstrate objectively the presence of coronary disease with currently available techniques is severely limited. He describes the use of the ballistocardiograph in the diagnosis and management of patients with coronary heart disease, and stresses the value of the ballistocardiographic cigarette test.

Simonson[11] discusses the gravitational effects of postural changes. The changes of the extracranial volume pulse, recorded by means of an impedance plethysmograph, in tilted head-up and head-down positions, are significantly greater in older than in younger men, indicating impairment of circulatory postural regulation with age. Surprisingly enough, this impairment is partially compensated for in coronary patients, possibly due to hyperactive carotid sinus reflexes.

Mental Impairments and Brain Pathology • Margolis[12] describes pathological observations in senile cerebral disease made with the aid of new techniques and includes a broad survey of the literature.

Obrist and Busse[13] describe the senescent electroencephalogram in a summary of findings on more than 1,200 elderly people. In healthy persons, the EEG undergoes definite but minor alterations with age, though the findings are not correlated with performance on intelligence, learning, or memory tests. In aged psychiatric patients, on the other hand, EEG alterations are more pronounced

AN AMES CLINIQUICK®

CLINICAL BRIEFS FOR MODERN PRACTICE

"MARGINS OF SAFETY"[1] IN DIABETES

Each diabetic patient is an individual problem, but certain basic principles underlie favorable "margins of safety" for all diabetic patients. Four of these principles merit every physician's attention:

(1) *Know the patient thoroughly*—both as a case and as a person.

(2) *Teach the patient carefully*—to cope with diabetes as a condition of life.

(3) *Collect data systematically*—for periodic and cumulative follow-up.

(4) *Console the patient wisely*—even virtuous adherence to regimen cannot assure "...the reward of freedom from vascular disease."[1]

For higher "margins of safety" in day-to-day control, frequent urine-sugar tests may be complemented by routine testing for urine ketones. CLINITEST® provides the practical quantitation of sugar needed for aid in successful diabetic management. ACETEST® promptly detects both ketonuria and ketonemia,[2] providing prompt warning of ketosis.

ACETEST is of special value in diagnosis and treatment of diabetic coma,[3] as well as in daily control of juvenile diabetes, severe diabetes in adults, diabetes in pregnancy, and in oral hypoglycemic regimens.

1. Danowski, T. S.: Diabetes *9*:292, 1960.
2. Fajans, S. S., in Williams, R. H.: Diabetes, New York, Hoeber, 1960, p. 420.
3. Lee, C. T., and Duncan, G. G.: Metabolism *5*:144, 1956.

for an extra margin of safety
in day-to-day control of diabetes

test for *Glucosuria*...
with *color-calibrated*

CLINITEST® BRAND *Reagent Tablets*

standardized urine-sugar test for easily read, practical quantitation

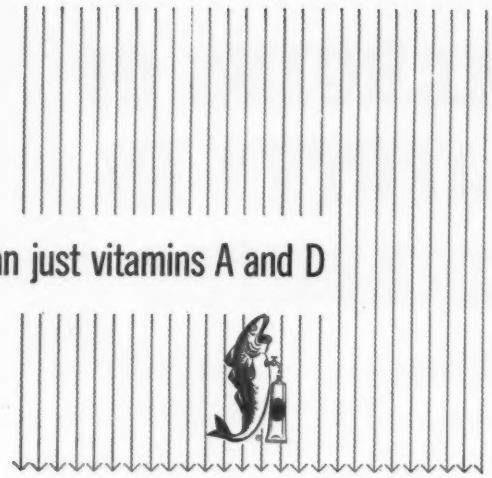
01161

AMES
COMPANY, INC.
Elkhart • Indiana
Toronto • Canada

...test for *Ketonuria*
with *ketone-specific*

ACETEST® BRAND *Reagent Tablets*

1 drop of urine—a few seconds—detects both acetone and acetoacetic acid



more than just vitamins A and D

DESITIN®
ointment

also provides
unsaturated fatty acids as well as the vitamins A and D (of high grade Norwegian cod liver oil)—essential to skin health and integrity

and ingredients that are emollient, lubricant, gently astringent, protective, and aid tissue repair (zinc oxide, talcum, petrolatum and lanolin)

in a smooth creamy ointment so processed that one application of Desitin soothes, protects, and promotes healing for hours in...

diaper rash
wounds
burns
ulcers
(decubitus, diabetic, varicose)
intertrigo

Samples Please write... DESITIN CHEMICAL COMPANY
812 Branch Avenue, Providence 4, R. I.

and there is a significant correlation with mental status. Psychiatric patients with normal or low blood pressure have more diffuse slowing than do those with mild hypertension. It is speculated that an elevated blood pressure may compensate for increased vascular resistance in old age, thus tending to maintain cerebral circulation and preserve a youthful tracing.

Loranger and Misiak[14] report on tests of critical flicker frequency and some intellectual functions in old age. They studied 50 female residents of homes for the aged, all between the ages 74 and 80. Each patient was given the following battery of tests: critical flicker frequency, Porteus Maze, Wisconsin Card Sorting, Raven Progressive Matrices, Digit Symbol, and PMA reasoning. These particular tests of mental abilities were selected because performance on them declines markedly with age. All the tests of intellectual functions, except the Porteus Maze, correlated significantly with CFF. The relationship of CFF and intellectual functioning in the aged is tentatively ascribed to a reduced central neural efficiency in old age, which adversely affects both CFF and some intellectual functions.

Collagen and Connective Tissue • Lansing[15] discusses the role of elastic tissue in atherosclerosis.

Boucek and co-workers[16,17] discuss the properties of fibroblasts, especially with relation to the development of atherosclerosis, and the effects of sex and tissue age upon connective tissue metabolism.

Kohn[18] reports a histological study of the relationship of age to the extent of swelling of connective tissue in the human lung in acid. Connective tissue in pleura and around blood vessels in lungs from young individuals swelled more than in lungs from aged individuals. The distinction between young and old was most marked in connective tissue around blood vessels larger than capillaries and least marked in pleura.

Rehabilitation Evaluation • It has long since been demonstrated, notably by Rusk and his associates, that intensive rehabilitation efforts will produce dramatic results in severely disabled individuals. Less is known, however, of the kind and amount of rehabilitation effort that is necessary to return bed-bound aged patients to a reasonable degree of self-care (or, preferably, to prevent their becoming bed-bound in the first place) and of the economic feasibility of providing various kinds and amounts of rehabilitation. Muller has made a preliminary report of the study that he and Tobis and others are carrying out to identify the kinds and amounts of rehabilitation activity that are desirable for patients in nursing homes, to develop measurements of the needs of the patients and of their improvement under treatment, and to determine the cost of various levels of treatment.[19]

Osteoarthritis • Silberberg and associates[20] report a study of sternoclavicular joints of 200 persons ranging in age from the 1st to the 10th decades. They report that the incidence and severity of osteoarthritis in this series increased up to the age of 80 years. In individuals over 90 years of age, the incidence of severe arthritis was strikingly decreased. The lesions found in males were more severe than in females, and Negroes seemed to be more susceptible than whites. There was a positive correlation between osteoarthritis and diabetes and chronic renal disease, and between severe osteoarthritis and obesity. No correlation was found to exist between osteoarthritis and arteriosclerosis.

The relationship between arthritis and obesity did not seem to be based on mechanical factors. They report that hyperplasia and hypertrophy of the articular cartilage cells occurred early in the aging process, and the authors postulate that this may have some relationship to the development of osteoarthritis.

Thyroid Response • Baker and associates[21] studied the responses to the administration of thyroid-stimulating hormone to two middle-aged men (aged 46 and 51) and three elderly men (aged 81, 88, and 92). Responses of the middle-aged subjects were not substantially different from those of the elderly men, and the available evidence, which is meager, does not support the contention that with advancing age there is a decreased responsiveness of the thyroid gland to thyroid-stimulating hormone.

For those women who prefer or require an arc-ing type diaphragm,

The New *Ramses*® BENDEX®

embodies all of the superior features of the conventional Ramses Diaphragm, together with the very best hinge mechanism contained in any arc-ing diaphragm: a thin, thin dome of pure gum rubber, a flexible cushioned rim for comfort, with just the right lateral tension to give anterior-posterior rigidity and spermtight fit. Easily inserted, placed and removed; no introducer required; ideal for use with Ramses 10-hour spermicidal jelly. Prescribe Ramses "TUK-A-WAY"® Kit #703 containing Ramses BENDEX Diaphragm sized 65 to 90 mm., and Ramses Vaginal Jelly in 3 oz. tube. RAMSES, BENDEX, and "TUK-A-WAY" are registered trade-marks of Julius Schmid, Inc.

Julius Schmid, Inc.
423 West 55th Street, New York 19, N. Y.

RIASOL®

PROVEN

SAFE
EFFECTIVE
TREATMENT
OF
PSORIASIS

Clinically tested, safe and effective RIASOL offers maximum assurance against recurrence and adverse reactions.

RIASOL contains 0.45% Mercury chemically combined with soaps, 0.5% Phenol, and 0.75% Cresol. Available at pharmacies or direct in 4 and 8 fluid ounces. Write for professional sample and literature.

SHIELD *Laboratories* Dept. 106
12850 MANSFIELD • DETROIT 27, MICHIGAN

Spinal Reflexes • Frazier and associates[22] have measured spinal reflexes in rats. They find no significant changes in nerve conduction velocity with age, but do find an increase in central delay of the reflex. Histological analysis of 23 spinal cords in the lumbar region has been completed. The cell counts of the ventral horn show a steady decrease with age.

CONCLUSION

As a final comment, I suggest that research on the biological aging process is not going to solve the problems of old age, important as it is in furthering our understanding of basic life processes. We cannot even be sure that research on the medical and social and economic needs of old people is going to solve these problems, but we certainly need to know much more, not only about the factors which lead to eventual death, but what is more important, about those that cause the disabling infirmities of old age. We must find out which infirmities can be prevented and how they can be prevented. We must find out how aging can most effectively be managed in order to give our fellow citizens the best possible opportunity for a decent and worthwhile old age, so that as they approach their terminal years, they may best contribute to their own happiness, to their families, and to society at large. This is not a new idea, but it may be that we are finally approaching the time when we can better fulfill the concept expressed by the ancient Greeks, that the art of living consists in dying young—but as late as possible.

1. U.S. Bureau of the Census: Population estimates. Current Population Reports, series P-25, No. 212. Washington, D.C., U.S. Government Printing Office, Jan. 26, 1960, pp. 1-2.

2. U.S. National Office of Vital Statistics: Health and demography. Washington, D.C., U.S. Government Printing Office, October 1956, p. 57.

3. U.S. Congress: House Subcommittee of Committee on Appropriations, Departments of Labor and Health, Education, and Welfare, 1961. Hearings. 86th Cong. 2d sess. Part IV. Statements of Members of Congress, interested organizations, and individuals. Washington, D.C., U.S. Government Printing Office, 1960, p. 255.

4. Birren, J. E., editor: Handbook of aging and the individual; psychological and biological aspects. Chicago, University of Chicago Press, 1959, 939 pp.

5. Stamler, J.: The epidemiology of atherosclerotic coronary heart disease. Postgrad. Med. 25:610-622, 685-701, May and June 1959.

6. O'Neal, R. M., Thomas, W. A., and Hartroft, W. S.: Dietary production of myocardial infarction in rats: Anatomic features of the disease. Am. J. Cardiol. 3:94-100, January 1959.

7. Hartroft, W. S., O'Neal, R. M., and Thomas, W. A.: Pathogenesis of atherosclerosis and myocardial infarction. Fed. Proc. 18:36-46, July 1959.

8. Davis, C. B., Jr., Cox, G. E., Taylor, C. B., and Cross, S. L.: Cholesterol synthesis in human liver. Surgical Forum 9:486-489, 1959.

9. Spain, D. M., Aristizabal, N., and Ores, R.: Effect of estrogens on resolution of local cholesterol implants. Arch. Path. 68:30-33, July 1959.

10. Davis, F. W., Jr.: The role of the ballistocardiograph in the diagnosis and management of patients with coronary heart disease: Stress tests and the cigarette test. Am. J. Cardiol. 3:103-110, January 1959.

11. Simonson, E.: Effect of age and coronary artery disease on the postural adjustment of peripheral circulation. Circulation Res. 7:442-447, May 1959.

12. Margolis, G.: Senile cerebral: A critical survey of traditional concepts based upon observations with newer techniques. Lab. Invest. 8:335-370, March-April 1959.

13. Obrist, W. D., and Busse, E. W.: The senescent electroencephalogram. J. Gerontal. 14:508, October 1959.

14. Loranger, A. W., and Misiak, H. K.: Critical flicker frequency and some intellectual functions in old age. J. Gerontol. 14:323-327, July 1959.

15. Lansing, A. I.: Elastic tissue in atherosclerosis. *In* Connective tissue, thrombosis, and atherosclerosis. New York, Academic Press, Inc., 1959, pp. 167-179.

16. Boucek, R. J., Noble, N. L., and Woessner, J. F., Jr.: Properties of fibroblasts. *In* Connective tissue, thrombosis, and atherosclerosis. New York, Academic Press, Inc., 1959, pp. 193-211.

17. Boucek, R. J., Noble, N. L., and Woessner, J. F., Jr.: The effects of tissue age and sex upon connective tissue metabolism. Ann. New York Acad. Sc. 72:1016-1030, June 16, 1959.

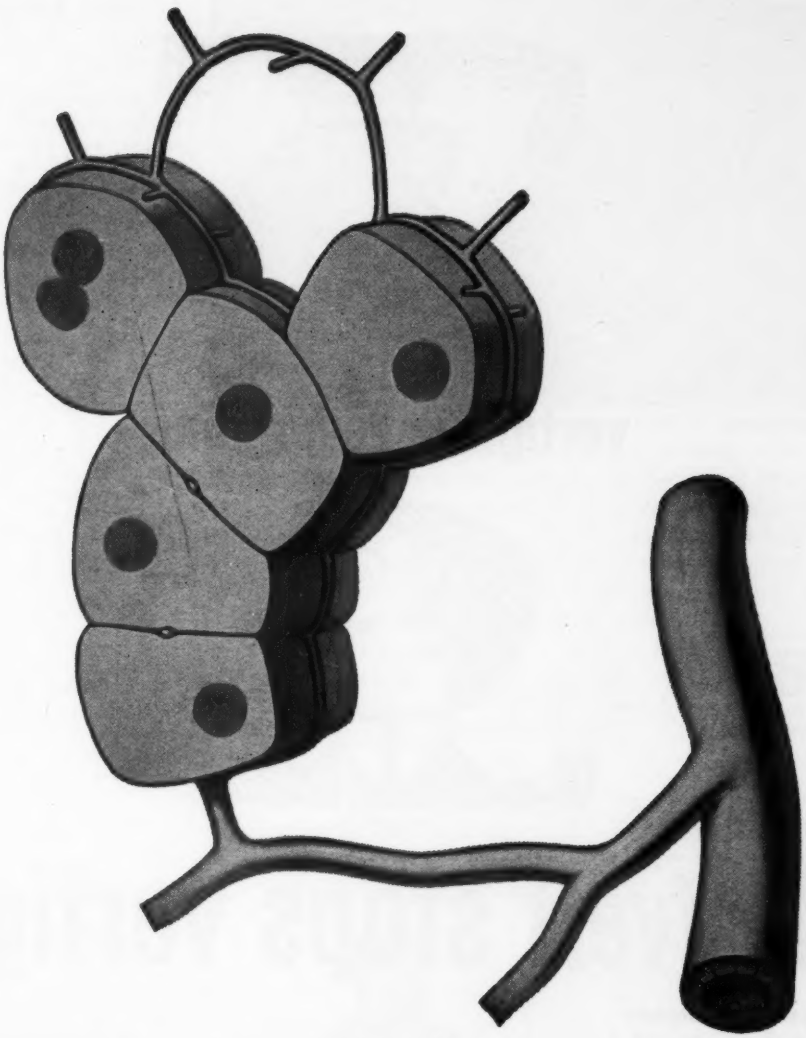
18. Kohn, R. R.: Age and swelling in acid of perivascular connective tissue in human lung. J. Gerontol. 14:16-18, January 1959.

19. Muller, J. N., et al.: Rehabilitation evaluation—Some social and clinical problems. (In press.)

20. Silberberg, M., et al.: Aging and osteoarthritis of the human sternoclavicular joint. Am. J. Path. 35:851-865 1959.

21. Baker, S. P., Gaffney, G. W., Shock, N. W., and Landowne, M.: Physiological responses of five middle-aged and elderly men to repeated administration of thyroid stimulating hormone (Thyrotropin; TSH). J. Gerontol. 14:37-47, January 1959.

22. Frazier, E. T., Santambrogio, G., and Boyarsky, L. L.: Alteration of spinal reflexes with age. The Physiologist 2:41, August 1959.



IMPROVE HEPATO-BILIARY FUNCTION AT THE CELLULAR LEVEL WITH CHOLAN-HMB®

Cholan-HMB contains chemically pure oxidized bile acid to stimulate the production of a large volume of thin bile, flush the biliary tree, improve digestion of fats, and relieve the symptoms of dyspepsia, constipation and indigestion caused by intrahepatic biliary stasis.

To counteract spasm of the biliary sphincters and relax the gallbladder, Cholan-HMB contains spasmolytic homatropine methylbromide. The mild sedative component helps to calm the tense, emotional patient with hepatobiliary dysfunction. Cholan-HMB provides physiologic and symptomatic relief of biliary stasis in primary biliary dyskinesia, pre- and postcholecystectomy syndrome, cholangitis, and digestive disturbances of pregnancy.

Cholan-HMB® — dehydrocholic acid, Maltbie, 250 mg.; 2.5 mg. homatropine methylbromide, and 8 mg. phenobarbital. 1 or 2 tablets t.i.d. after meals.

Cholan-V® — dehydrocholic acid, Maltbie, 250 mg., and 5 mg. homatropine methylbromide. 1 or 2 tablets t.i.d. after meals.

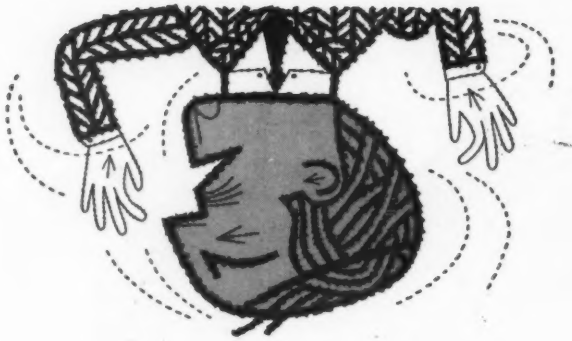
Cholan-DH® — dehydrocholic acid, Maltbie, 250 mg. 1 or 2 tablets t.i.d. after meals.

Supplied: Bottles of 100, 500, and 1,000 tablets.
Contraindication: severe hepatitis; complete obstruction of the hepatic or common bile ducts; glaucoma

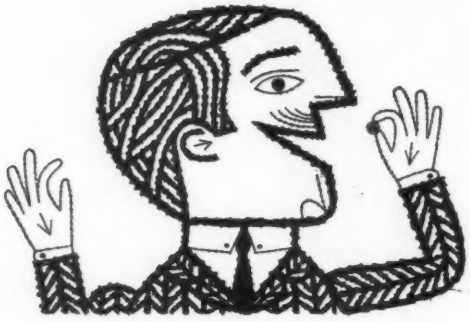
Maltbie

Maltbie Laboratories Division, Wallace & Tiernan Inc., Belleville 9, New Jersey

PGN-11



vertigo is reversible



Antivert® stops vertigo

moderate to complete relief of symptoms in 9 out of 10 patients[1]

Prescribe one ANTIVERT tablet (or 1-2 teaspoonfuls ANTIVERT syrup) 3 times daily, before each meal, for prompt relief of vertigo, Meniere's syndrome and allied disorders. Side effects are short-lived, usually only harmless flushing and tingling associated with vasodilation. As with all vasodilators, ANTIVERT is contraindicated in severe hypotension and hemorrhage.

Supplied: Small blue-and-white scored tablets (meclizine HCl 12.5 mg. and nicotinic acid 50 mg.) in bottles of 100. Syrup (each 5 cc. teaspoonful contains meclizine HCl 6.25 mg. and nicotinic acid 25 mg.) in pint bottles. Prescription only. Bibliography available on request.

Reference: 1. Scal, J. C.: Eye Ear Nose & Throat Month. **38**:738 (Sept.) 1959.

And for your aging patients—
NEOBON® Capsules
five-factor geriatric supplement

Rx Roerig

New York 17, N.Y.
Division, Chas. Pfizer & Co., Inc.
Science for the World's Well-Being®

Tuberculosis being wiped out*

Since the introduction of chemotherapy in the treatment of tuberculosis about a decade ago, the death rate from the disease in the United States has been decreasing at an accelerated pace. In 1960 the rate was at an all-time low of 6 per 100,000 population, or little more than one fourth that recorded only a decade earlier. Every section of the country and every segment of the population has shared in the gains.

The reduction in tuberculosis mortality according to color, sex, and age in the decade from 1946-48 to 1956-58, the latest years for which such data are available, were tabulated. Males, both white and nonwhite, recorded decreases of about 75 per cent at all ages combined. Among white males the tuberculosis death rate fell from 36.2 per 100,000 in 1946-48 to 9.8 in 1956-58, and among nonwhite males from 99.2 to 24.2 per 100,000. Even more favorable has been the trend for females, the death rate from the disease dropping from 18.0 to only 3.3 per 100,000 among the white, and from 74.3 to 11.9 per 100,000 among the nonwhite. The tuberculosis problem is becoming increasingly concentrated in the male population. Currently, the mortality rate for males is 3 times that for females among white persons and twice that for females among the nonwhite.

In each color-sex group, the reductions in tuberculosis mortality during the decade were remarkably large in childhood and early adult life. For example, among white males the decrease amounted to at least 85 per cent at the ages under 15, and was no less than 95 per cent at ages 15-24. Among white females the reduction in the latter age group was 97 per cent—the rate falling from 14.9 per 100,000 in 1946-48 to only 0.5 in 1956-58. It is no exaggeration to say that tuberculosis in the United States has been practically eradicated as a cause of death among white persons in the age range 1-24 years.

Beyond early adult life, the relative improvement in tuberculosis mortality decreased progressively with advance in age. Thus, among white men 65-74 years of age the reduction was slightly over 50 per cent, and among white women at these ages it was 72 per cent; at ages 75 and over the experience was less favorable. The downward trend in tuberculosis mortality was more gradual for nonwhite than for white persons at the more advanced ages.

It is apparent that an increasing proportion of the tuberculosis deaths are among persons at the older ages. In each color-sex group, the proportion of all tuberculosis deaths occurring at ages 65

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, April 1961.

For effective treatment and relief of painful muscular spasms, sprains, strains, stiff neck, lumbago and sciatica, many doctors are getting remarkable results with Gebauer's Ethyl Chloride spray. Clinical studies indicate cases where both temporary and permanent relief have been recorded. Available in the dispenseal amber bottle with a choice of three nozzle openings: fine, medium or coarse jet spray. Also packaged in the 100 gram, unbreakable tube with finger-tip control valve, Gebauer's Ethyl Chloride is an important item in the modern doctor's emergency kit.

For additional information and a summary of clinical results, write: Gebauer Chemical Company, 9410 St. Catherine Avenue, Cleveland 4, Ohio.

ETHYL CHLORIDE
GEBAUER
CHEMICAL COMPANY
Makers of: FLURO-ETHYL

Alkalol
mild mucous solvent for nose and throat

Write for sample
THE ALKALOL COMPANY
TAUNTON 23, MASS.

AT HEALTH-POSTURE BELT

Cross-bands of Power Elastic for Back Support. They concentrate at the right spot at sacroiliac and sacro-lumbar regions.

Outer Front pliable Knit Elastic Fold may be raised or lowered to cover all that's needed—no spare tire roll.

Original Design Patented in U. S. & Canada

DIFFERENT FROM ANY OTHER BELT ON THE MARKET
No Straps — No Buckles — Stays Adjusted

HOLDING POWER without the discomfort of taping

AT RIB BELT

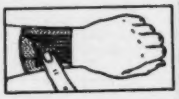
PUT IT ON TAKE IT OFF *in a jiffy!*

INSTANT RELIEF
Maintains proper compression and aids in prevention of chest movement. Won't creep or roll. Stays in place.

ADJUSTABLE to size and physical needs.

Famous VELCRO CLOSURE gives you quicker, easier attach-and-detach-ability. Distributes stress evenly over entire surface. Completely washable.

AT WRISTLET



One Size--Fits All
Adjustable to your needs with VELCRO Closure.

For further information and literature, write to:
A-T SURGICAL CO.
560 DWIGHT ST. . HOLYOKE, MASS.

IN CHRONIC URINARY TRACT INFECTIONS

UROLITIA

Soothes... Burning Urination

CLEARS... Infected Urine

Urolitia is bacteriostatic, bactericidal, nontoxic, does not produce drug-fastness, provides simple dosage, and is economical for long term therapy.

Urolitia rapidly controls E. coli, S. albus, and S. aureus infection. Its soothing action is due to the prompt release of Triticum and Zea extractives by the kidney into the inflamed bladder.

Samples on Request

Urolitia is especially useful for elderly patients with residual urine due to cystocele or enlarged prostate, in whom permanent sterilization of the urine cannot be expected.

CONTAINS NO DYES

Urolitia—each tablespoonful contains:

Methenamine	20 gr.
Lithium Benzoate	2 gr.
Sodium Benzoate	2 gr.

In a soothing, demulcent menstruum of Triticum and Zea.

Dose: 1 Tbs. in ½ cup warm water ½ hr. a.c. and h.s. Decrease dose after second day.

Supplied: Bottles of 8 fl. oz.

BORCHERDT COMPANY

217 North Wolcott Avenue Chicago 12, Illinois

PRURITUS ANI

Treated Orally with

Borcherdt's MALT SOUP EXTRACT (MALTSUPEX)

POWDER LIQUID

shows good results. We would like to send you the recently published paper by Dr. Louis H. Brooks who says,

"It was found that administration of Malt Soup Extract in dosages of one or two tablespoonfuls twice daily produced favorable results. Within two or three days after beginning this simple regimen, the itching and burning usually disappeared. Frequently there was prompt remission of symptoms which was followed by improvement in the condition of the tissue of the anal canal and the perianal skin.*

Malt Soup Extract promotes the growth of aciduric flora in the lower tract. Because this product is a food and not a drug, there are no side effects. Because it is not habit forming, it can be given over long periods of time when necessary. Diabetic patients should allow for 60 calories for each tablespoonful.

Malt Soup Extract Powder is specially processed non-diastatic barley malt extract neutralized with potassium carbonate.

Two heaping tablespoonfuls twice a day is the usual effective dose and this may be reduced to two tablespoonfuls at bed time when satisfactory results are secured.

Malt Soup Extract is available in liquid and powder form in 8 oz. and 16 oz. jars at most drug stores coast to coast.

*Diseases of the Colon & Rectum, Vol. 1, No. 5, Sept.-Oct. 1958.

Samples and literature gladly sent on your request

Borcherdt Company

217 North Wolcott Avenue, Chicago 2, Ill.
In Canada: Chame Drug Co. Ltd., Toronto, Ont.

and over has more than doubled in the decade under review, and they now account for two fifths of the total tuberculosis mortality among white persons.

Every State in the Union recorded a large decrease in tuberculosis mortality between 1946-48 and 1956-58. The reduction amounted to 75 per cent or more in 34 States, and ranged from a low of 66 per cent in Arkansas to 85 per cent in Washington. Particularly noteworthy is the marked progress made in Arizona, where the rate dropped from 99.7 to 18.6 per 100,000.

The reported incidence of tuberculosis in the United States, like the mortality from the disease, is generally highest in the South and Southwest, and lowest in the Midwest. Preliminary data for 1959 indicate that the frequency of active and probably active cases reported ranged from 9 per 100,000 population in Nebraska and Utah to 65 in Arizona and 77 in the District of Columbia, the average being 33 per 100,000 population for the country as a whole.

The large degree of control gained over tuberculosis is one of the signal achievements of modern medicine and public health. Through the development and more intensive use of the newer methods of control which have already proved effective—particularly chemotherapy—tuberculosis can be virtually eradicated in the United States.

Books received

Books received for review during the period from June 5 to July 5 are listed below. Reviews will be published as space permits.

THE CARDIAC ARRHYTHMIAS. A Guide for the General Practitioner. By Brendan Phibbs, M.D., Casper Clinic, Casper, Wyoming. Cloth. Pp. 128, with illustrations. Price $7.50. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1961.

THE HUMAN ADRENAL GLAND. By Louis J. Soffer, M.D., F.A.C.P., Attending Physcian and Head of Endocrinology, The Mount Sinai Hospital, New York City; Clinical Professor of Medicine, State University of New York College of Medicine in New York City; Ralph I. Dorfman, Ph.D., Director of Laboratories, Worcester Foundation for Experimental Biology, Shrewsbury, Mass.; Research Professor of Biochemistry, Boston University Graduate School; Professor of Chemistry (Affiliate), Clark University; and J. Lester Gabrilove, M.D., F.A.C.P., Associate Attending Physician, the Mount Sinai Hospital, New York City; Clinical Associate Professor of Medicine, State University of New York College of Medicine in New York City. Cloth. Pp. 591, with illustrations. Price $18.50. Lea & Febiger, Washington Square, Philadelphia 6, 1961.

CANCER OF THE NASOPHARYNX. Its Natural History and Treatment. By M. Lederman, M.B., D.M.R., F.F.R., Deputy Director, Radiotherapy Department, Royal Marsden Hospital; Consulting Radiotherapist, The Royal National Throat, Nose and Ear Hospital, The Metropolitan Ear, Nose, and Throat Hospital,

THERE'S NO PLACEBO... for Aching Feet!

Persistent foot fatigue and related discomforts are very real problems to the patient. They may tie back to chronic foot strains and to the patient's individual shoe-fitting problems. Miss or Mrs. Patient (men, too, of course) may demand relief, but still won't accept unstylish "corrective" shoes. May we, for the twelfth year in these columns, call your attention to Burns Cuboids?

Individually fitted from 248 styles and sizes, Cuboid Shoe Inserts when worn in any sensible shoe are designed to "break in" and take form that adapts the shoe to the plantar area of the patient's foot. Leading shoe stores and shoe departments have Cuboids, and trained fitters.

A special data sheet describing the functions of Cuboid Shoe Inserts is available to doctors on request.

BURNS CUBOID CO.
Established 1936
P. O. Box 658
Santa Ana · California

Burns' Cuboid

Ideal Folding Table

For Home and Office

Height 27½" Length 69"
Weight 32 lbs. Width 22"

Price $42.50

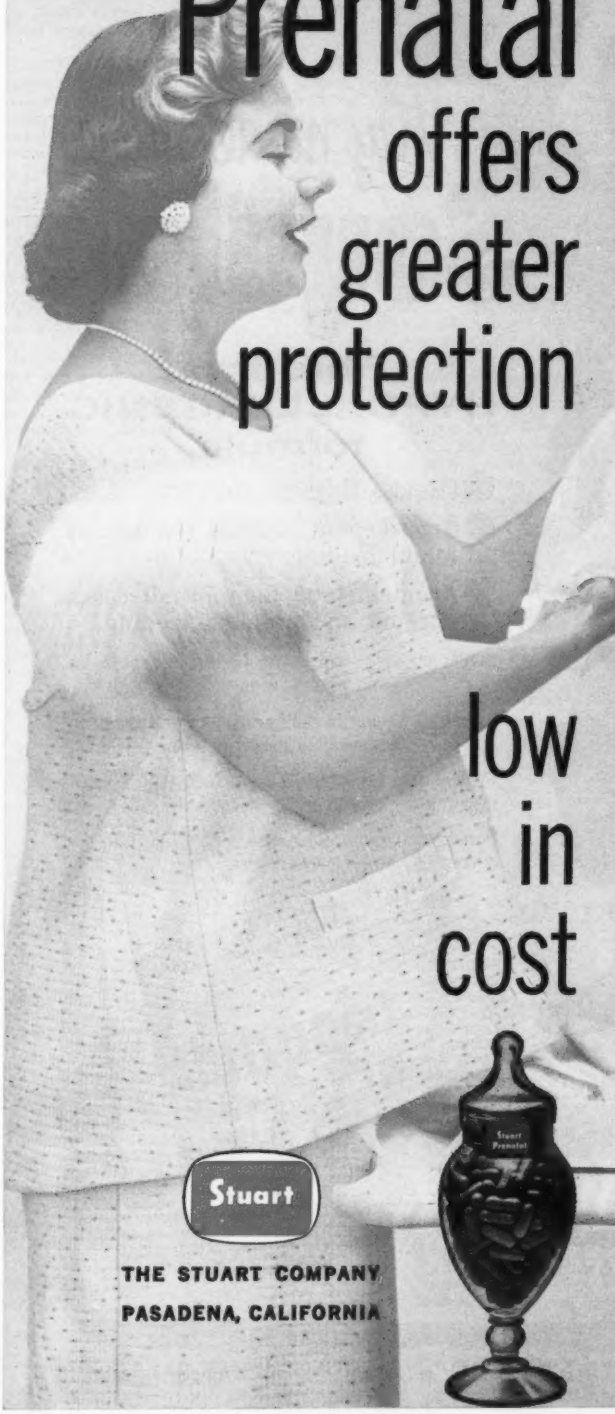
Upholstered with 2" Paratex padding
$12.50 additional

(Payment must accompany order)

American Osteopathic Assn.

212 E. Ohio St., Chicago 11, Illinois

Stuart Prenatal offers greater protection low in cost



WHEN ADDITIONAL NUTRITIONAL SUPPORT IS REQUIRED

ONE TABLET CONTAINS:

Vitamins:

A	5,000 USP Units
D	400 USP Units
C	75 mg.
B_1	3 mg.
B_2	3 mg.
B_6	3.3 mg.
B_{12} (cobalamin)	4 mcg.
from Ionex-12*	2.7 mcg.
Niacinamide	20 mg.
d-Calcium Pantothenate	3.3 mg.
K	0.5 mg.

*Stuart's absorption-enhancing complex of vitamin B_{12} (B_{12} from cobalamin).

Minerals:

Ferrous Fumarate (provides 42 mg. elemental iron)	2 gr.
Calcium Sulfate-anhydrous (provides 350 mg. calcium)	1190 mg.
Iodine	0.05 mg.

Also trace minerals as follows:
copper, 0.25 mg.; manganese, 0.33 mg.; zinc, 0.1 mg.; magnesium, 1.67 mg.; and potassium 1.67 mg.

Neofactrin (B_{12} with intrinsic factor concentrate, non-inhibitory, STUART) ..... 5 mg.

Dosage: 1 tablet daily or as directed—after meals.

May be recommended or prescribed.

Bottles of 100 tablets
and Economy Pack of 225 tablets.
At all pharmacies.

Stuart

THE STUART COMPANY
PASADENA, CALIFORNIA

ECONOMY PACK SAVES $1.25
in this decorative jar.

they made mine Soyalac

Fibre-free HYPOALLERGENIC formula

- Provides balanced nutritional values.
- An excellent formula for regular infant feeding.
- An ideal food for milk allergies, eczema and problem feeding.

SOYALAC helps solve the feeding problem of prematures and infants requiring milk-free diet.

Strikingly similar to mother's milk in composition and ease of assimilation, babies thrive on SOYALAC.

Clinical data furnish evidence of SOYALAC'S value in promoting growth and development.

Protein of high biologic value is obtained from the soybean by an exclusive process.

Free Booklet and Samples

A request on your professional letterhead or prescription form will bring to you complete information, and a supply of samples.

Medical Products Division

LOMA LINDA FOOD COMPANY

ARLINGTON, CALIFORNIA • MT. VERNON, OHIO

Moorfields Eye Hospital, The Royal Eye Hospital, and The Chelsa Hospital for Women, London, England. Cloth. Pp. 117, with illustrations. Price $6.75. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1961.

PSYCHIATRY. Volume 1: Principles. By E. Eduardo Krapf, M.D., Fellow, Royal Faculty of Physicians and Surgeons, Glasgow; Professor of Clinical Psychiatry, University of Buenos Aires; Chief, Mental Health, World Health Organization, Geneva. Cloth. Pp. 244, with illustrations. Price $6.50. Grune & Stratton, Inc., 381 Park Avenue South, New York 16, 1961.

ESSENTIALS OF NEUROSURGERY. For Students and Practitioners. By Sean Mullan, M.D., Associate Professor of Neurosurgery, The University of Chicago. Cloth. Pp. 273, with illustrations. Price $6.75. Springer Publishing Company, Inc., 44 East 23rd Street, New York 10, 1961.

ATLAS AND DEMONSTRATION TECHNIQUE OF THE CENTRAL NERVOUS SYSTEM. By James B. McCormick, M.D., F.C.A.P., Pathologist, Swedish Covenant Hospital, Chicago, Illinois. Cloth. Pp. 103, with illustrations. Price $11.25. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1961.

THE MERCK MANUAL OF DIAGNOSIS AND THERAPY. Edited by Charles E. Lyght, M.D. Ed. 10. Cloth. Pp. 1907. Price $7.50, regular edition; $9.75, deluxe edition. Merck & Company, Inc., Rahway, New Jersey, 1961.

MEDICAL PHARMACOLOGY. Principles and Concepts. By Andres Goth, M.D., Professor of Pharmacology and Chairman of the Department, The University of Texas Southwestern Medical School, Dallas, Texas. Cloth. Pp. 551, with illustrations. Price $11.00. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1961.

RECENT ADVANCES IN BIOLOGICAL PSYCHIATRY. Volume III. The Proceedings of the Fifteenth Annual Convention and Scientific Program of the Society of Biological Psychiatry, Miami, June 1960. Edited by Joseph Wortis, M.D., Associate Clinical Professor of Psychiatry, State University of New York, Downstate Medical College, Brooklyn, New York. Cloth. Pp. 241, with illustrations. Price $9.75. Grune & Stratton, Inc., 381 Park Avenue South, New York, 16, 1961.

SUBLUXATION AND DISTORTION OF JOINTS WITHOUT FRACTURE. By Rowland Hill Harris, A.B., M.D., F.A.C.S., F.R.C.S. Ed., Fellow of the Royal Society of Medicine of London; Fellow of the Western Surgical Association; Member of the Founders' Group of the American Board of Surgery; formerly Chief Surgeon of the Battle Creek Sanitarium, Battle Creek, Michigan. Cloth. Pp. 156. Price $6.00. University Publishers Inc., 59 East 54th Street, New York 22, 1961.

AN OUTLINE GUIDE FOR THE CARE OF POST-OPERATIVE CARDIAC PATIENTS. By Merle E. White, R.N., Cardiac Recovery Room Nurse, The Johns Hopkins Hospital, Baltimore, Maryland. Cloth. Pp. 108, with illustrations. Price $6.00. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1961.

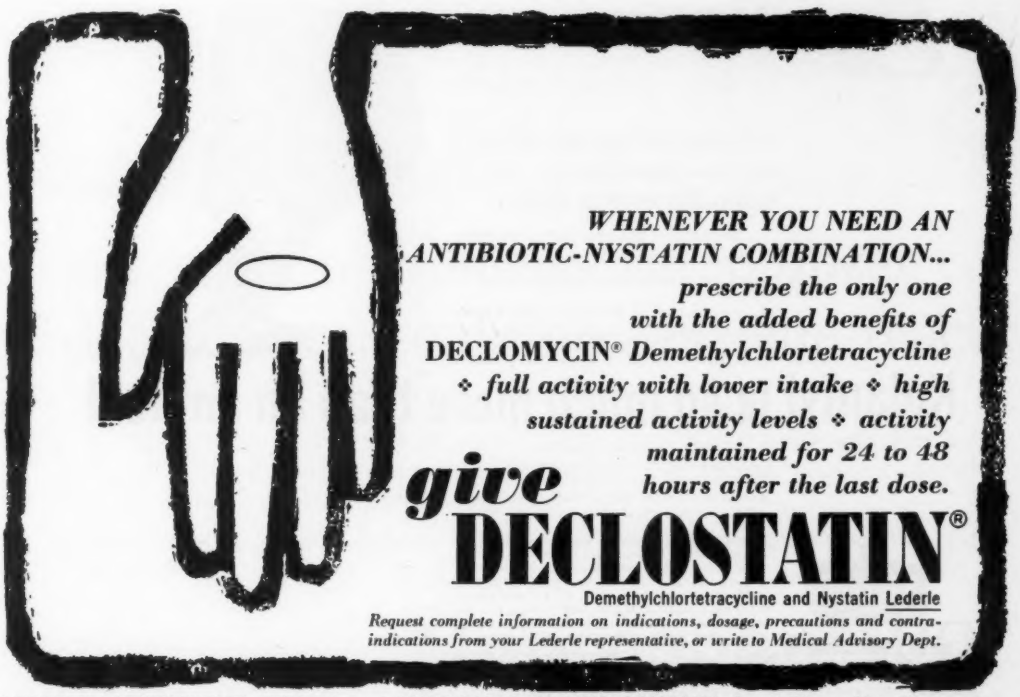
HISTOLOGY. By Arthur W. Ham, M.B., F.R.S.C., Professor and Head of Department of Medical Biophysics, University of Toronto; Professor of Anatomy, in Charge of Histology, in the Faculties of Medicine and Dentistry, University of Toronto; Head of the Division of Biological Research, Ontario Cancer Institute, Toronto, Ontario, Canada; and Thomas Sydney Leeson, M.A., M.D., B.Ch. (Cantab.), Associate Professor of Anatomy, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada. Ed. 4. Cloth. Pp. 942, with illustrations. Price $11.00. J. B. Lippincott Company, East Washington Square, Philadephia 5, 1961.

PROGRESS IN MEDICAL GENETICS. Volume 1. Edited by Arthur G. Steinberg, Ph.D., Professor of Biology, Department of Biology, and Associate Professor of Human Genetics, Department of Preventive Medicine, Western Reserve University, Cleveland, Ohio. Cloth. Pp. 341, with illustrations. Price $9.75. Grune & Stratton, Inc., 381 Park Avenue South, New York 16, 1961.

CANCER IN CHILDHOOD AND YOUTH. By Sigismund Peller, M.D., F.R.S.H., New York City. Cloth. Pp. 291, with illustrations. Price $8.75. John Wright & Sons Ltd., Bristol. Williams & Wilkins Company, exclusive U.S. distributors, 428 East Preston Street, Baltimore 2, 1960.

HEREDITY IN OPHTHALMOLOGY. By Jules François, Professor of Ophthalmology at the University of Ghent, Belgium; Member of the Academy of Medicine. Translated from the French edition entitled L'Hérédité en ophthalmologie by Jules François. Cloth. Pp. 731, with illustrations. Price $23.00. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1961.

THE FIXED ERUPTION. A Possible Hazard of Modern Drug Therapy. By Ashton L. Welsh, M.S., M.D., Assistant Professor of Dermatology and Syphilolgy, University of Cincinnati, College of Medicine, Cincinnati, Ohio. Cloth. Pp. 248, with illustrations. Price $9.75. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1961.


WHENEVER YOU NEED AN
ANTIBIOTIC-NYSTATIN COMBINATION...
prescribe the only one
with the added benefits of
DECLOMYCIN® Demethylchlortetracycline
❖ full activity with lower intake ❖ high
sustained activity levels ❖ activity
maintained for 24 to 48
hours after the last dose.
give
DECLOSTATIN®
Demethylchlortetracycline and Nystatin Lederle
Request complete information on indications, dosage, precautions and contra-indications from your Lederle representative, or write to Medical Advisory Dept.
LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

Ulcer therapy requires more than antacids

"Putting alkali into the stomach does not always relieve pain, even though the acid is completely neutralized thereby."[1]

Kolantyl provides the missing action—SPASMOLYSIS—plus 3 additional healing actions

"...our studies indicate that ulcer pain in the uncomplicated case is invariably associated with abnormal motility."[2]

A groundswell of medical opinion now indicts gastric spasm—as well as acid—in the causation of ulcer pain.[1-6]

Kolantyl is so much more than an antacid

Examine the KOLANTYL Formula:
antispasmodic: BENTYL (dicyclomine) Hydrochloride *antacids:* Magnesium Oxide/Aluminum Hydroxide Gel *demulcent:* Methylcellulose *anti-enzyme:* Sodium Lauryl Sulfate

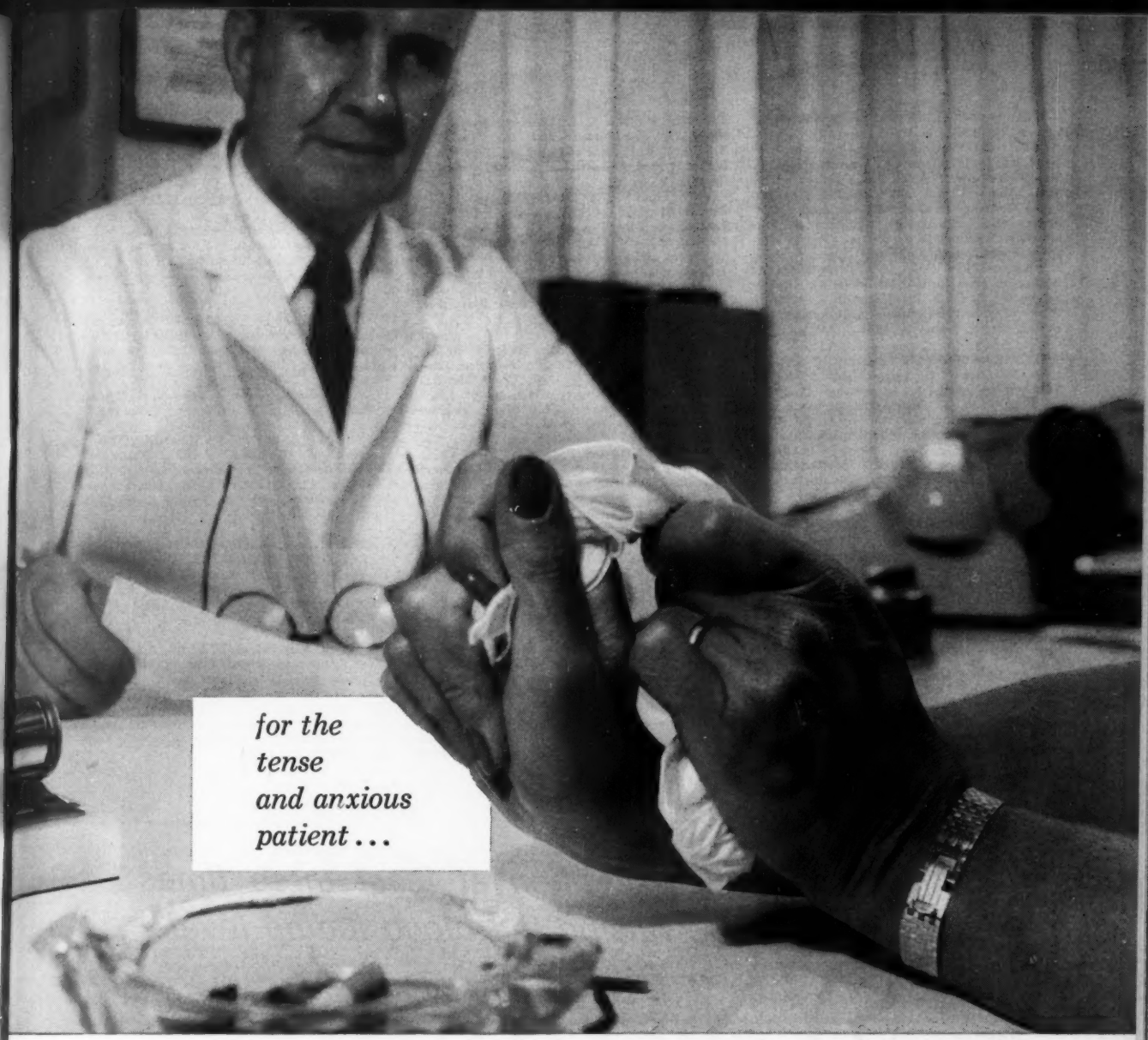
References: 1. Altschule, M. D.: M. Sc. *6*:560, 1959. 2. Rufin, J. M.; Baylin, G. J.; Legerton, C. W., and Texter, E. C., Jr.: Gastroenterology *23*:252, 1953. 3. Texter, E. C., *et al.*: Ann. Int. Med. *51*:1275, 1959. 4. Kasich, A. M.; Boleman, A. P., Jr., and Rafsky, J. C.: Am. J. Digest. Dis. *1*:361, 1956. 5. Roth, J. L. A.; Wechsler, R. L., and Bockus, H. L.: Gastroenterology *31*:493, 1956. 6. Rafsky, J. D.: Gastroenterology *27*:29, 1954.

TRADEMARKS: KOLANTYL®, BENTYL®

Brochure with full product information available on request.

Merrell
SINCE 1828

THE WM. S. MERRELL COMPANY
Division of Richardson-Merrell Inc.
Cincinnati, Ohio/Weston, Ontario



the only sustained-release tranquilizer that does not cause autonomic side reactions

- **SAFE, CONTINUOUS RELIEF** of anxiety and tension for 12 hours with just one capsule—without causing autonomic side reactions and without impairing mental acuity, motor control or normal behavior.
- **ECONOMICAL** for the patient—daily cost is only a dime or so more than for barbiturates.

Meprospan®-400

400 mg. meprobamate (Miltown®) sustained-release capsules

Usual dosage: One capsule at breakfast lasts all day; one capsule with evening meal lasts all night.

Available: *Meprospan-400*, each blue-topped capsule contains 400 mg. Miltown (meprobamate).
Meprospan-200, each yellow-topped capsule contains 200 mg. Miltown (meprobamate). Both potencies in bottles of 30.

WALLACE LABORATORIES/*Cranbury, N. J.*

CME-4231

THE PREMATURE BABY. By V. Mary Crosse, O.B.E., M.D. (Lond.), D.P.H., M.M.S.A., D.(Obstet.)R.C.O.G., Consultant Paediatrician Little Bromwich General Hospital, Solihull Hospital, Moseley Hall Children's Hospital, Sorrento Maternity Hospital, Marston Green Maternity Hospital, etc; Lecturer in Paediatrics and Child Health; University of Birmingham: Lecturer in Paediatrics, Central Midwives Board; Member of Expert Advisory Panel on Maternal and Child Health (with special relation to Prematurity), World Health Organization. Ed. 5. Cloth. Pp. 266, with illustrations. Price $7.00. Little, Brown & Company, 34 Beacon Street, Boston 6, 1961.

CALDERWOOD'S ORTHOPEDIC NURSING. By Carroll B. Larson, M.D., F.A.C.S., Professor of Orthopedic Surgery and Chairman of Department of Orthopedic Surgery, State University of Iowa; and Marjorie Gould, R.N., B.S., M.S., Supervisor of Orthopedic Nursing, State University of Iowa; formerly Instructor, Advanced Orthopedic Nursing, Boston University. Ed. 5. Cloth. Pp. 547, with illustrations. Price $6.50. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1961.

MYXEDEMA. By Jerry K. Aikawa, M.D., Associate Professor of Medicine, University of Colorado School of Medicine, Denver, Colorado. Cloth. Pp. 106. Price $5.00. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1961.

ABDOMINAL OPERATIONS. With Special Articles by 36 British and American Contributors. By Rodney Maingot, F.R.C.S., London. Ed. 4. Cloth. Pp. 1402, with illustrations. Price $29.50. Appleton-Century-Crofts, Inc., 32 W. 32nd Street, New York 1, 1961.

THE PRACTITIONER'S HANDBOOK. Edited by William A. R. Thomson, M.D., Editor of *The Practitioner*. Cloth. Pp. 711. Price $12.50. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1961.

PREGNANCY AND DIABETES MELLITUS. By Lars Hagbard, M.D., Associate Professor and Lecturer in Obstetrics and Gynecology, Senior Obstetrician and Gynecologist, Department of Obstetrics and Gynecology, University of Gothenburg, Sweden. Cloth. Pp. 101, with illustrations. Price $6.75. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1961.

PRINCIPLES AND TECHNICS OF REHABILITATION NURSING. By Florence Jones Terry, B.A., R.N., P.T., O.T., Board Member, The Rehabilitation Center of Greater St. Louis, St. Louis Mo.; formerly Chief Nurse, Institute of Rehabilitation and Physical Medicine, New York University-Bellevue Medical Center, New York, N. Y.; Gladys S. Benz, R.N., M.A., Chairman, Department of Maternal and Child Nursing, State University of Iowa, College of Nursing, Iowa City, Iowa; formerly Supervisor of the Pediatric Department Bellevue Hospital, New York, N. Y.; Dorothy Mereness, R.N., A.B., M.N., Ed.D., Director of the Program, Psychiatric-Mental Health Nursing, New York University, School of Education, New York, N. Y.; Frank R. Kleffner, Ph.D., Assistant Director, Division of Speech Correction and Pathology, Central Institute for the Deaf, St. Louis, Mo.; Assistant Professor of Speech, Washington University, St. Louis, Mo.; and Deborah MacLurg Jensen, R.N., M.A. (Editor). Ed. 2. Cloth. Pp. 344, with illustrations. Price $6.00. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1961.

CLINICAL ORTHOPAEDICS. Number 19. By Anthony F. DePalma, Editor-in-Chief. Cloth. Pp. 307, with illustrations. Price Single Number: $7.50. Sustaining Subscription: $6.00 per issue. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1961.

VIRUS MENINGO-ENCEPHALITIS. CIBA Foundation Study Group No. 7. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P.; and Margaret P. Cameron, M.A. Cloth. Pp. 120, with illustrations. Price $2.50. Little, Brown & Company, 34 Beacon Street, Boston 6, 1961.

NEUROSIS AND PSYCHOSIS. By Beulah Chamberlain Bosselman, M.D., Professor of Psychiatry, University of Illinois College of Medicine, Chicago, Illinois. Ed. 2. Cloth. Pp. 188. Price $6.00. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1961.

CURABLE AND INCURABLE NEUROTICS. Problems of "Neurotic" versus "Malignant" Psychic Masochism. By Edmund Bergler, M.D. Cloth. Pp. 471. Price $6.95. Liveright Publishing Corporation, 386 Park Avenue South, New York 16, 1961.

CIBA Foundation Symposium on QUINONES IN ELECTRON TRANSPORT. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Cecilia M. O'Connor, B.Sc. Cloth. Pp. 453, with illustrations. Price $11.00. Little, Brown & Company, 34 Beacon Street, Boston 6, 1961.

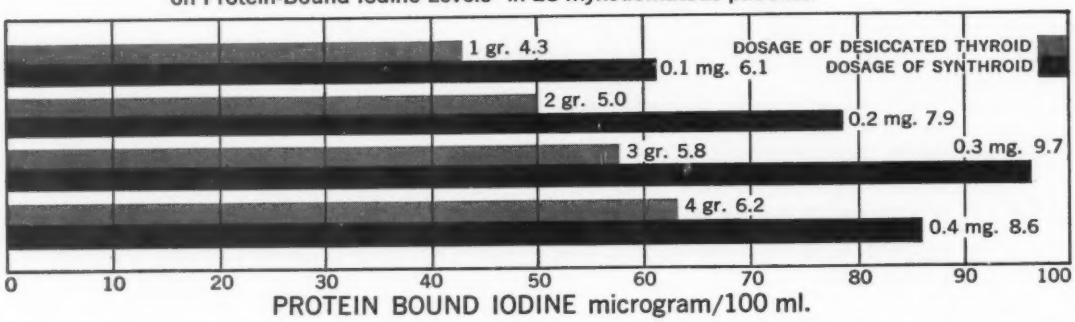
ESSENTIAL HYPERTENSION. An International Symposium, Berne, June 7th-10th, 1960, sponsored by CIBA. Edited by K. D. Bock, Basle; and P. T. Cottier, Berne. Cloth. Pp. 392, with illustrations. Price $9.00. Springer-Verlag, Germany. Ciba Pharmaceutical Products, exclusive U.S. distributors, 556 Morris Avenue, Summit, New Jersey, 1960.

"Almost without exception at least three times more effective in raising the blood iodine level"[1]

SYNTHROID®

THE ACTIVE PRINCIPLE OF THYROID

Influence of "equivalent" doses† of **SYNTHROID** and Desiccated Thyroid on Protein-Bound Iodine Levels* in 28 myxedematous patients.



*Average pretreatment level, 2.38 mcg./100 ml. 195 determinations of serum P.B.I. level were made in these 28 patients. Four weeks were allowed for stabilization in a given dose.

†"Equivalent" dosage: 0.1 mg. of sodium l-thyroxine (SYNTHROID) is equivalent to 1 gr. desiccated thyroid. Reference: 1. Sturnick, M. I., and Lesses, M. F.: New England J. Med. 264:608 (Mar. 23) 1961.

A-118

Changes of address

Anderson, Melvin J., from 420 N. Michigan Ave., to 905 N. Michigan Ave., Saginaw, Mich.
Athens, William A., from 15050 S. Telegraph Road, to 23265 Eureka Road, Taylor, Mich.
Athens, William J., from 3191 W. Broad St., to 3306 Sullivant Ave., Columbus 4, Ohio
Atterberry, Kenneth Dale, from Camdenton, Mo., to 1459 Greenberry Road, Jefferson City, Mo.

Baker, B. B., from 3819 S. Madison Ave., to 819 S. Denver Ave., Tulsa 19, Okla.
Barnes, Edmund C., from 82 Main St., to 113 Main St., Silver Creek, N. Y.
Bender, Charles R., from 408 Royal Ave., to 2707 Federal St., Camden 5, N. J.
Berg, Albert J., from 50 N. Perry St., to 811 N. Cass Lake Road, Pontiac, Mich.
Beyer, Carolyn T., from Davenport, Iowa, to 826 First Huntington Nat'l Bank Bldg., Huntington, W. Va.
Beyer, Robert C., from Davenport, Iowa, to 826 First Huntington Nat'l Bank Bldg., Huntington, W. Va.
Blumberg, Harris, from Cleveland, Ohio, to 1516 Lincoln Road, Wickliffe, Ohio
Bond, Richard C., from Levittown, Pa., to 1621 Farragut Ave., Bristol, Pa.
Botz, Robert J., from G-5270 N. Saginaw Road, to 3122 Clio Road, Flint 4, Mich.
Bringman, Edward W., from 1920 Parkwood Ave., to 1034 Woodville Road, Toledo 5, Ohio
Borkosky, William E., from 4613 Mahoning Ave., N. W., to 213 Perkinswood, N. E., Warren, Ohio
Buchea, Brian Marcus, from 8511 15th Ave., N. E., to 8523 15th Ave., N. E., Seattle 15, Wash.
Button, William E., from Fredericktown, Mo., to 10651 Bobbie Downs St., St. Louis 34, Mo.

Carnicky, Richard B., from Grove City, Pa., to 6502 N. 35th Ave., Phoenix 17, Ariz.
Cavalier, Joseph N., from 106 E. Market St., to 213 Perkinswood, N. E., Warren, Ohio
Chaplin, Richard G., from East Lansing, Mich., to 3406 N. East St., Lansing 6, Mich.
Cherashore, E. Ivan, from Philadelphia, Pa., to 102 Delaware St., Woodbury, N. J.
Church, William Kimball, from 78 Matchedash St., N., to 85 Neywash St., Orillia, Ont., Canada
Cluff, Robert A., from 1465 Florence St., to 10486 E. Colfax Ave., Aurora 8, Colo.
Coan, Paul J., from Munchen, Germany, to Route 1, Farmington, Mo.
Coatney, Richard F., from Des Moines, Iowa, to Lake View, Iowa
Cohen, Harry C., from Brigantine, N. J., to 25 S. Illinois Ave., Atlantic City, N. J.
Collins, Francis C., from Drexel Hill, Pa., to 209 Sproul Road, Villanova, Pa.
Comstock, Byron H., Jr., from 377 Pinecrest Drive, to Box 313, Laguna Beach, Calif.
Cooper, Howard B., from 7040 Dorcas St., to 6333 Carnation St., Philadelphia 44, Pa.

and SYNTHROID®

Improved results obtained with desiccated thyroid[2]

Patients Treated With Thyroid B.P.* and Later With Sodium l-thyroxine (SYNTHROID)

Sex Age (yrs.)	Thyroid Dose (gr.)	Years of Treatment	Cholesterol (mg. %)	P.B.I. (mcg. %)	Sodium l-Thyroxine Dose (mg.)	Weeks of Treatment	Cholesterol (mg. %)	P.B.I. (mcg. %)	Weight Loss (lbs.)
M 57	1½	4	400	1.7	0.15	8	290	4.4	29
F 71	2-3	8	260	0.7	0.2	10	200	7.0	11
F 65	2-4	8	552	2.3	0.2	8	299	4.5	9
M 67	1-3	5	360	2.4	0.2	6	230	6.0	12
F 70	3-4	9	600	1.7	0.2	4	340	6.6	4
F 62	1-3	10	299	1.6	0.1	8	164	3.9	3
F 59	4	8	420	2.0	0.2	3	215	7.0	5

Precautions: As with other thyroid preparations, overdose may cause diarrhea or cramps, nervousness, tremors, tachycardia, insomnia, and continued weight loss. Medication, in such cases, should be stopped for 2-6 days, then resumed at a lower level.

Contraindications: Thyrotoxicosis, acute myocardial infarction.

For Hypothyroidism, these results strongly indicate **SYNTHROID®**
(brand of sodium l-thyroxine)

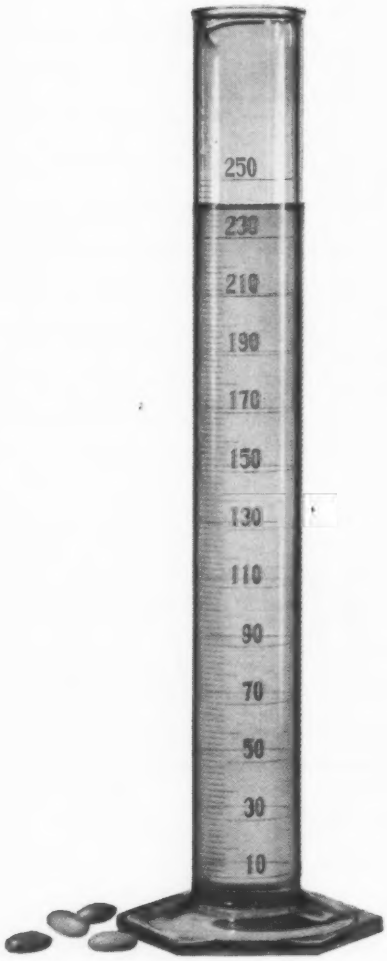
Reference: 2. Macgregor, A. G.: Lancet 1:329-332 (Feb. 11) 1961. *Brit. Pharmacopeia

FLINT, Eaton & Company / Morton Grove, Illinois

In acute and chronic diarrhea the most effective symptomatic solution to the dual problem:

dual action Sorboquel®

(polycarbophil-thihexinol methylbromide) *tablets*



fast action 1

for too fluid feces:

Exceptional water-binding capacity of polycarbophil to absorb free fecal water

fast action 2

for too frequent evacuations:

Superior, yet selective, nonopiate antimotility action of thihexinol methylbromide

(Complete information regarding the use of Sorboquel Tablets is available on request.)

dosage: For older children and adults, initial dosage of one SORBOQUEL Tablet q.i.d. is usually adequate. Severe diarrheas may require six, or even eight, tablets in divided daily doses. (Dosages exceeding six tablets a day should not be employed over prolonged periods.)

Supplied: Sorboquel Tablets, bottles of 50 and 250. Each tablet contains 0.5 Gm. polycarbophil and 15 mg. thihexinol methylbromide.

WHITE LABORATORIES, INC., Kenilworth, New Jersey White

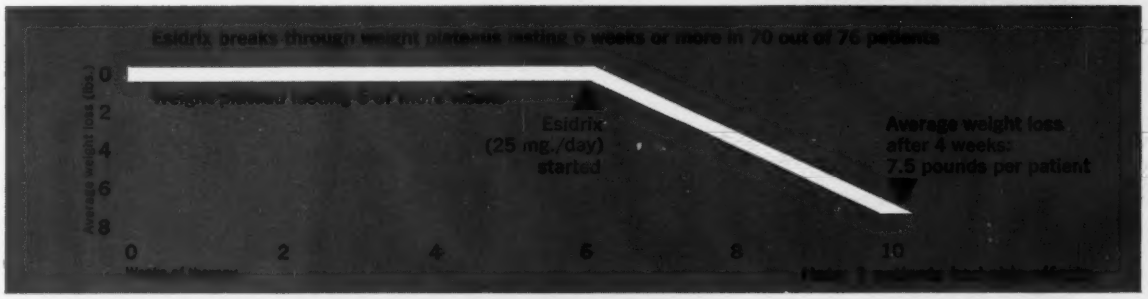
Weight problem? Start the reducing program right, keep it going right with Esidrix® Esidrix-K®

Photograph used with patient's permission.

Recent studies show that the diuretic action of Esidrix improves results of weight-reducing programs 2 ways:

1. As an adjuvant in initiating treatment: Esidrix induces greater weight losses in the first few days than a conventional regimen.[1] This weight loss may be significant in itself (depending on the degree of fluid retention). But more than that, the quick loss of even a few pounds builds confidence in the weight-reducing program, inspires determination to follow it faithfully.

2. As an adjuvant in maintenance treatment: Esidrix eliminates retained water—with consequent weight losses—to break through the weight plateaus so often encountered in antiobesity programs. (See schematic graph below.) The new weight loss cheers the patient and helps overcome his tendency to eat too much.



(Adapted from Einhorn and Kalb[2])

Esidrix®
(hydrochlorothiazide CIBA)

For complete information about Esidrix and Esidrix-K (including dosage, side effects, and cautions), see Physicians' Desk Reference, or write CIBA, Summit, N. J.

References: 1. Ray, R. E.: To be published. 2. Einhorn, H. P., and Kalb, S. W.: Clin. Med. 7:1995 (Oct.) 1960.

Supplied: ESIDRIX Tablets, 25 mg. (pink, scored) and 50 mg. (yellow, scored). ESIDRIX-K Tablets 25/500 (white, coated), each containing 25 mg. Esidrix and 500 mg. potassium chloride. **NEW STRENGTH ESIDRIX-K NOW AVAILABLE:** ESIDRIX-K Tablets 50/1000 (white, coated), each containing 50 mg. Esidrix and 1000 mg. potassium chloride.

CIBA
SUMMIT•NEW JERSEY

2/2921 MK-1

VITAMINS ARE THERAPY®

STRESSCAPS

STRESS FORMULA VITAMINS LEDERLE

IN FRACTURE CASES

High levels of B and C vitamins are particularly important to quickly replenish vitamin reserves depleted by the stress of fractures. Such metabolic support with STRESSCAPS increases the chance for an uncomplicated convalescence.

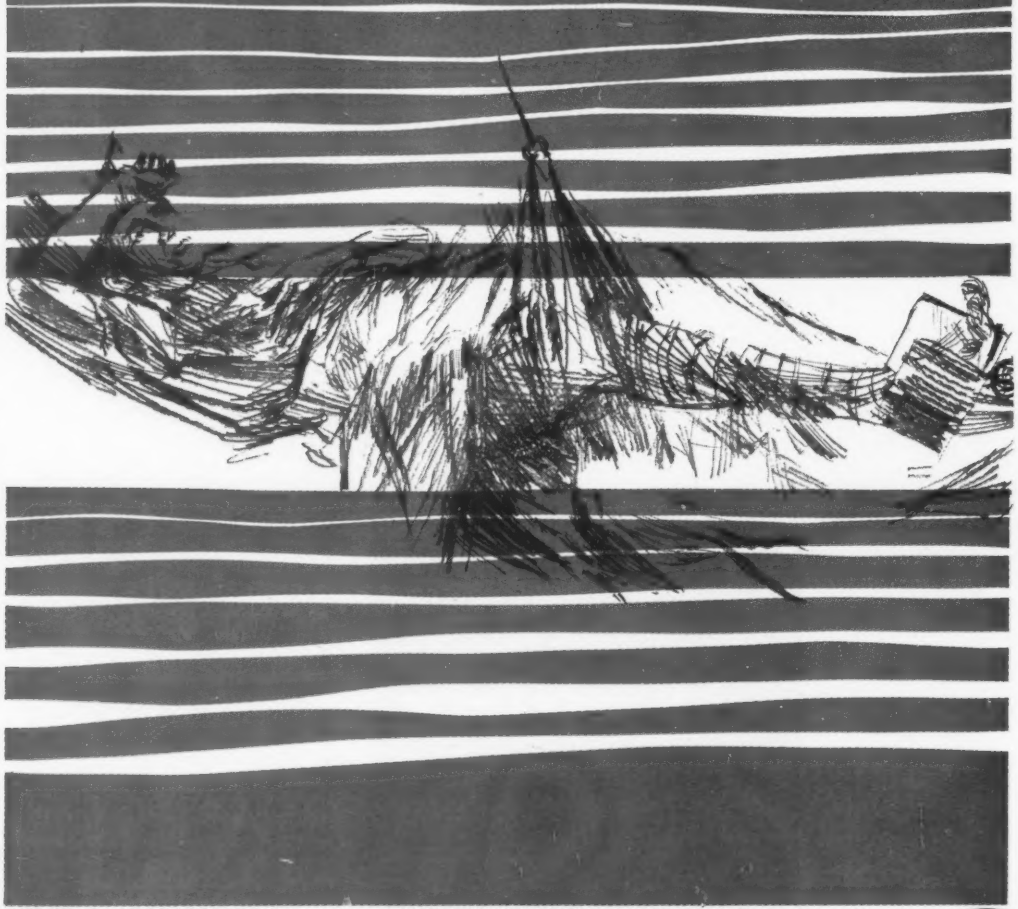
Packaged (30 and 100) in decorative "remind.der" jars.

Each capsule contains:

Thiamine Mononitrate (B_1)	10 mg.	Ascorbic Acid (C)	300 mg.
Riboflavin (B_2)	10 mg.	Pyridoxine HCl (B_6)	2 mg.
Niacinamide	100 mg.	Vitamin B_{12}	4 mcgm.
		Calcium Pantothenate	20 mg.

Average dose: 1 to 2 capsules daily.

Request complete information on indications, dosage, precautions and contraindications from your Lederle representative, or write to Medical Advisory Department.



LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

SUCCESSFUL FAMILY PLANNING...BASED ON YOUR COUNSEL AND **LANESTA® GEL**

Every young couple about to be married needs advice of all sorts, and they'll get it, too – from everybody – some good, some bad. But some of the most valuable counsel they can get – help in planning their own family – comes best from you. Their family happiness for many years can depend on what you suggest to them, including your recommendation for the use of Lanesta Gel.

Lanesta Gel, with or without a diaphragm, is a most effective means of conception control. Lanesta Gel offers faster spermicidal action because it rapidly diffuses into the seminal clot. In fact, Gamble ("Spermicidal Times of Commercial Contraceptive Materials – 1959"*) *found the mean diffusion spermicidal time of Lanesta Gel to be three to seven times faster than the mean diffusion times of ten leading commercially available contraceptive creams, gels, or jellies.*

Lanesta Gel has complete esthetic acceptance and is well tolerated. *Gamble, C. P.: Am. Pract. & Digest. Treat. *11*:852 (Oct.) 1960.

A PRODUCT OF LANTEEN® RESEARCH BREON Distributed by
Supplied by Esta Medical Laboratories, Inc., Alliance, Ohio BREON LABORATORIES INC., New York 18, N. Y.

Dabney, James W., from 1320 Bryson St., to 1732 Hillman St., Youngstown 7, Ohio
Dawson, J. Fred, Jr., from Clinton, Mo., to Lincoln Community Clinic, Lincoln, Mo.
DeVore, Harry J., from Carson City, Mich., to 206 W. Walker St., St. Johns, Mich.
DeWitt, Thomas B., from Tulsa, Okla., to 1 W. Dawes St., Bixby, Okla.
Dix, Kenneth H., from Portland, Mich., to 105 W. Main St., Carson City, Mich.
Don, Horace M., from Holden, Mo., to 6335 W. 41st Ave., Phoenix 19, Ariz.
Downing, Donald D., from Galien, Mich., to 539 Lake St., Box 366, Bridgman, Mich.
Durham, William R., from Box 536, to 2733 Main St., Hurricane, W. Va.

Elston, William L., from Warren, Ohio, to 4150 N. 19th Ave., Phoenix 15, Ariz.
Esrig, Harold L., from 2801 Flora Ave., to 10911 S. 71 Highway, Kansas City 37, Mo.
Evans, Richard W., from 123 S. McDonald St., to 203 E. Lincoln Ave., McDonald, Pa.

Feldman, Herbert O., from Detroit, Mich., to 9460 Middlebelt Road, Livonia, Mich.
Foster, Theodore F., from Cleveland, Ohio, to 6238 E. 16th Terrace, Kansas City 26, Mo.
Foster, Will P., from Flint, Mich., to 8288 Woodmont Ave., Detroit 28, Mich.
Fredericks, John C., from Houston, Texas, to 622 Wells, Gonzales, Texas
Fricke, Merritt R., from 2801 Flora Ave., to 3524 Main St., Kansas City 11, Mo.

Gallivan, Catherine L., from 850 De Witt Place, to 191 E. Walton St., Chicago 11, Ill.
Galusha, J. Harley, from 819 S. Denver Ave., to 815 S. Denver Ave., Tulsa 19, Okla.
Gama, Carlos H., from Ventura, Calif., to 637 Cooper Road, Oxnard, Calif.
Gillum, Randolph R., from Dallas, Texas, to 2328 Rose Marie Drive, Mesquite, Texas
Golding, Philip, from 531 Stinchcomb Drive, to 1585 Peace Place, Columbus 9, Ohio
Goodfellow, Walter V., from 2663 Tallant Road, to Box 3086, Santa Barbara, Calif.
Gordon, C. Ivan, from Lancaster, Pa., to 3827 Boardwalk, Atlantic City, N. J.
Gordon, Sanford, from Youngstown, Ohio, to 2309 Pittock St., Pittsburgh 17, Pa.
Gorenstein, Irwin C., from Detroit, Mich., to 950 N. E. 172nd St., North Miami Beach, Fla.
Grace, John M., from Saginaw, Mich., to 2012 Stuart St., Brooklyn 29, N. Y.
Greer, B. D. D., Jr., from Tulsa, Okla., to Box 6, Comanche, Texas
Greif, Mildred C., from 544 Stevens St., to 318 Cooper St., Camden 3, N. J.
Griesemer, Gerald, from 4302 S. Sixth Ave., to 1910 Granito Vista, Tucson, Ariz.
Gundermann, William Charles, from Jamaica, L. I., N. Y., to West Side Osteopathic Hospital, 1253 W. Market St., York, Pa.

Hagen, Douglas P., from 1209 E. Missouri St., to 17 Scott Street Terrace, Kirksville, Mo.
Hajjar, Raymond Thomas, from Garden City, Mich., to 10 W. Parkhurst Place, Detroit 3, Mich.

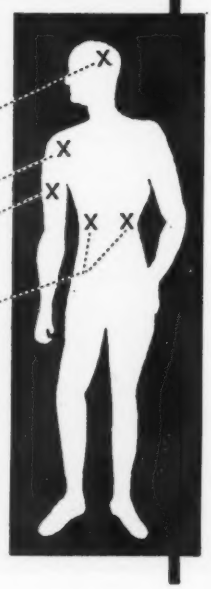
COMMON SENSE FOR A COMMON PROBLEM from

K U

IF you need SAFE, EFFECTIVE THERAPY for long-term treatment of ARTHRITIS and RHEUMATISM remember

SALIMEPH®

Salicylamide { analgesic / antirheumatic
Mephenesin relief of spasm
Vitamin C maintains adrenal reserve

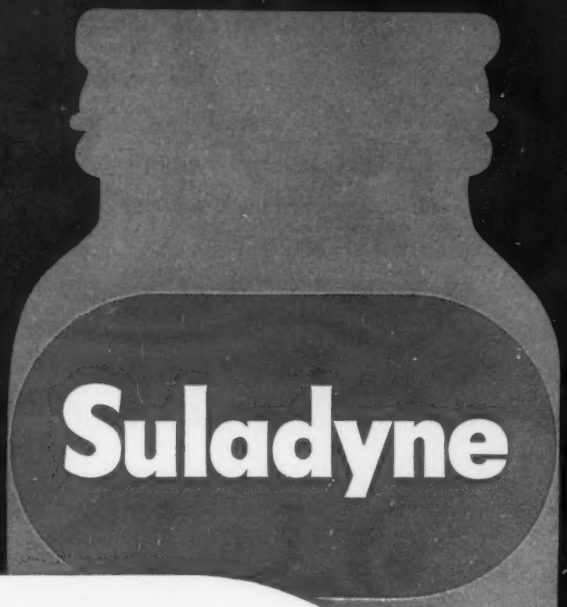


For Best Results Prescribe **SALIMEPH FORTE**

Each capsule-shaped tablet contains:
Salicylamide . . . . . 500 mg.
Mephenesin . . . . . 333 mg.
Ascorbic Acid . . . . 50 mg.

Write for sample and literature to
KREMERS-URBAN CO.
Milwaukee 1, Wisconsin
Distinctive R_x Specialties Since 1894

A more complete product for the treatment of urinary tract infections



ATTACKS IN 3 WAYS

1. Provides rapid and high sulfa concentration in the urine.

2. Provides adequate sulfa blood levels in the infected tissue not reached by the high sulfa concentration in the urine.

3. Provides fast symptomatic relief making the patient more comfortable.

Sulfamethylthiadiazole

Sulfadiazine

This combination of sulfas provides a 2-prong attack on the infection and results in effective low sulfa dosage, high solubility and safety

Azodyne (Stuart brand of phenylazo-diaminopyridine HCl) Azodyne imparts an orange-red color to the urine.

1 TABLET CONTAINS:	
SULFAMETHYLTHIADIAZOLE	125 mg.
SULFADIAZINE	125 mg.
AZODYNE	75 mg.

DOSE: Initially 4 tablets, then 2 tablets four times daily.

SUPPLIED: bottles of 100 tablets at all pharmacies.

Suladyne treats the infection and at the same time makes the patient more comfortable

Pasadena, **Stuart** California

when your diagnosis is menopause...

consider that current medical opinion favors treatment

"I know that many physicians feel that the menopause is a physiological process and no therapy for it is indicated.... I do not belong to this school of thought, though therapy can certainly be overdone. We have to bear in mind, I think, that flushes are merely one aspect of the menopause; irascibility, migrainoid headaches, insomnia, apprehension, moods of depression and nervousness may occur without any hot flushes at all. Then we mustn't forget the sequelae of the menopause, such as senile vaginitis, pruritus vulvae, and osteoporosis. These must be considered part of the menopausal syndrome."*

*Transatlantic Telephone Symposium, *The Effect of Estrogens in the Menopause*, Amsterdam/New York, 1959. Transcript available on request.

in the menopause—there is no substitute for a specific

"Premarin"®

CONJUGATED ESTROGENS (EQUINE)

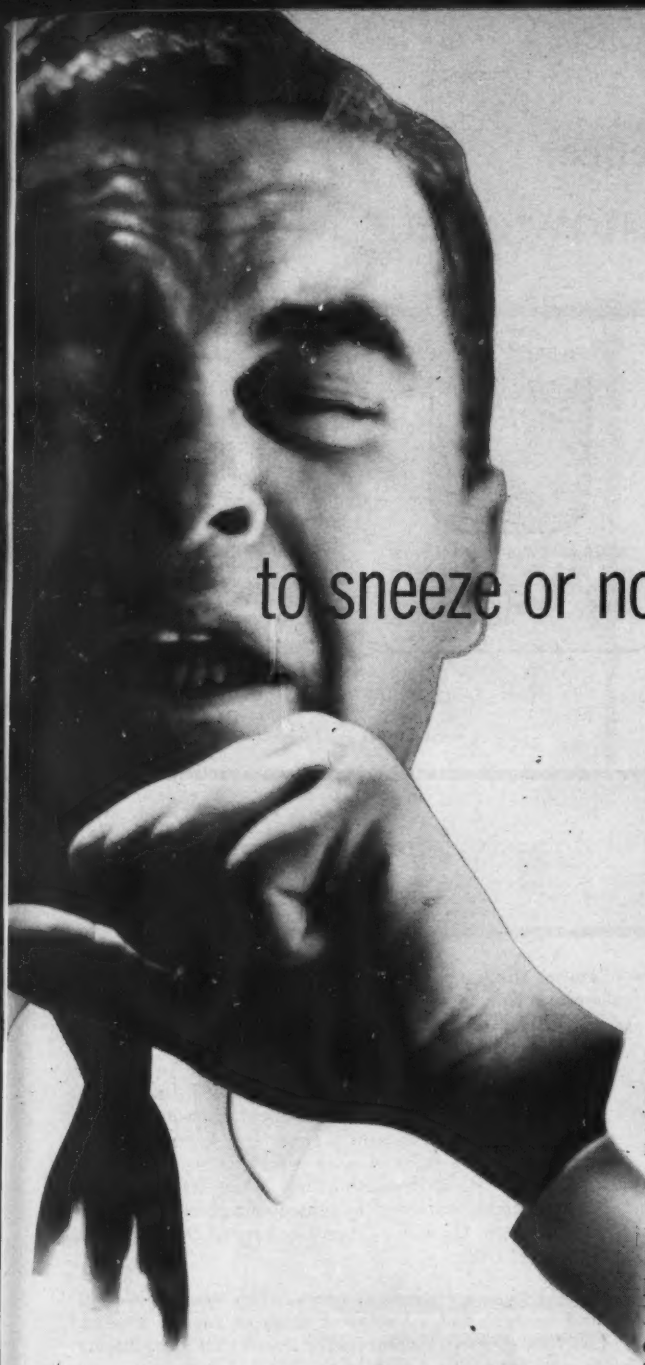
the natural oral estrogen that imparts a "sense of well-being"

Usual dosage: 1.25 mg. daily. Increase or decrease as required. Cyclic therapy is recommended (3 week regimen with 1 week rest period) to avoid continuous stimulation of breast and uterus.

Ayerst®

***AYERST LABORATORIES** New York 16, N. Y. • Montreal, Canada*

4100



Schering

to sneeze or not to sneeze...

in hay fever, there is no question

POLARAMINE

rapid relief of sneezing, tearing, associated symptoms

POLARAMINE provides unexcelled antihistaminic effectiveness with minimal dosage for your patients with hay fever. Rapid, effective relief of sneezing, tearing, rhinorrhea, itching and other symptoms helps your patients to "breathe easy" again . . . permits them to enjoy their environment. Patients feel better instead of "dragged out" because sleepless nights are no longer a problem. With POLARAMINE, your patients can work, read, engage in sports and other activities without being hampered by the distressing symptoms of hay fever.

For daylong or nightlong control, POLARAMINE REPETABS,® 4 and 6 mg., afford prolonged relief, eliminate repeated taking of medication.

Also available as Tablets, 2 mg., and Syrup, 2 mg./5 cc.

For complete details, consult latest Schering Literature available from your Schering Representative or Medical Services Department, Schering Corporation, Bloomfield, New Jersey.

POLARAMINE® Maleate, brand of dexchlorpheniramine maleate.

4242

after 3 years' clinical experience:
here is what we now know about MER/29 and . . .

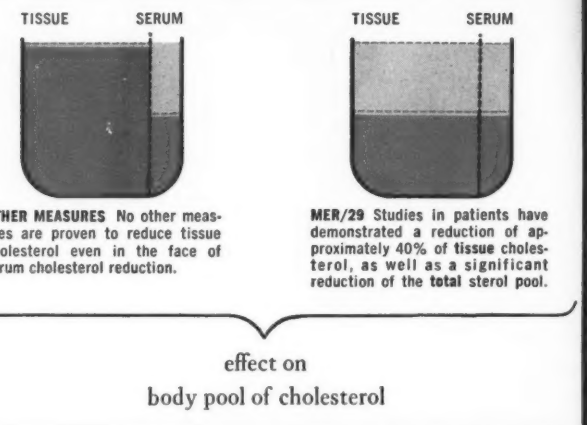
WE KNOW HOW MER/29 ACTS

We know that MER/29 lowers cholesterol in 8 out of 10 patients, even without dietary restrictions. In 576 patients studied by various physicians, average cholesterol levels dropped from 303 mg. % to 241 mg. % —an average decrease of 62 mg. %.

We know that MER/29 reduces total sterols in both blood and tissue.

We know that MER/29 does this by inhibiting the body's own production of cholesterol.

We know that its use in over 300,000 patients reaffirms the safety margins established in early laboratory and clinical data.



OTHER MEASURES No other measures are proven to reduce tissue cholesterol even in the face of serum cholesterol reduction.

MER/29 Studies in patients have demonstrated a reduction of approximately 40% of tissue cholesterol, as well as a significant reduction of the **total** sterol pool.

effect on
body pool of cholesterol

WE KNOW THE BENEFITS OF MER/29

We know that, in some patients, concurrent clinical benefits attend the use of MER/29. Published papers on MER/29 therapy to date report improvement in 50 of the 79 anginal patients reported in these studies, and comparable results are being obtained in similar studies now in progress. Among the other benefits reported are:

decreased incidence and severity of anginal attacks

improved* ECG *patterns

diminished nitroglycerin dependence

increased sense of well-being

"During triparanol [MER/29] therapy there was a definite improvement in the electrocardiographic tracings in response to exercise in 3 of 11 subjects with angina pectoris." —*Hollander, W.,* et al.: *J.A.M.A.* 174:*5 (Sept. 3) 1960.*

"Nitroglycerine requirements decreased in 3 [of 5 outpatient] patients, including the patient showing electrocardiographic improvement....Three [of 4 private male patients], after a lapse of some weeks, showed improvement in exercise electrocardiograms, which was sustained but not further improved in subsequent observations." —*Corcoran, A. C.,* et al.: *Progr. Cardiovasc. Dis.* 2*: (Pt.1) 576 (May) 1960.*

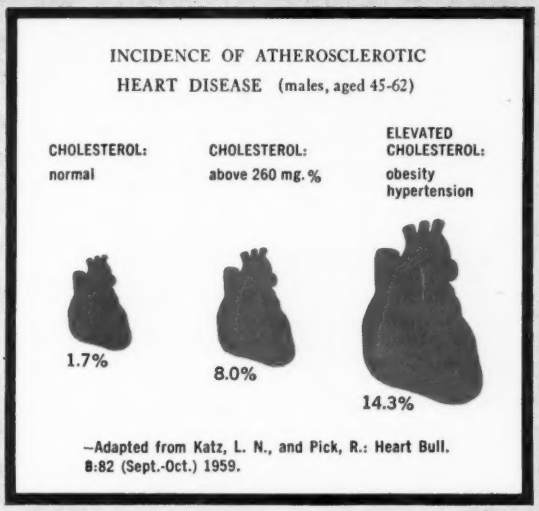
"Of the 45 patients with coronary artery disease followed for 1 year, 16 had a history of frequent anginal attacks. Fourteen of these spontaneously stated that their angina disappeared within 2 months of [MER/29] therapy....In one patient...with persistent coronary insufficiency pattern (ST segment depressions in multiple leads), there was a complete reversion to a normal tracing during MER/29 therapy with associated clinical improvement in angina." —*Lisan, P.: Progr. Cardiovasc. Dis.* 2*: (Pt. 1) 618 (May) 1960.*

. . . . what we are learning about atherosclerosis

WHY MER/29 MAY FAVORABLY ALTER ATHEROSCLEROSIS

"It has become generally accepted that elevated blood cholesterol or lipid, if sustained long enough, leads to early atherosclerosis."
–Page, I. H.: Mod. Med. 29:71 (Mar. 20) 1961.

Epidemiologic studies show that low cholesterol levels are associated with low incidence of atherosclerosis and coronary artery disease. On the basis of such studies, Stamler has said: "...a 15 to 20 per cent reduction in mean serum cholesterol levels alone might be associated with a 25 to 50 per cent reduction in coronary disease incidence rates in middle-aged men."
–Stamler, J.: Am. J. Pub. Health 50:(Pt. 2) 14 (Mar.) 1960.


INCIDENCE OF ATHEROSCLEROTIC HEART DISEASE (males, aged 45-62)
CHOLESTEROL: normal
CHOLESTEROL: above 260 mg.%
ELEVATED CHOLESTEROL: obesity hypertension
1.7%
8.0%
14.3%
–Adapted from Katz, L. N., and Pick, R.: Heart Bull. 8:82 (Sept.-Oct.) 1959.

THE DECISION FACING THE PHYSICIAN

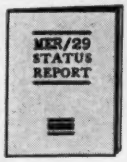
Despite our knowledge of the action, benefits and safety of MER/29, much remains to be discovered about the basic concept of cholesterol-lowering therapy. In this, MER/29 is comparable to the well-accepted use of antihypertensive agents: we know they lower blood pressure, but we cannot prove that lowering blood pressure will also lower morbidity or mortality. Yet few physicians hesitate to use these agents. The possible good is too great to ignore.

So it is with MER/29. No one can yet be certain that sustained, effective lowering of total body sterols will prevent or alter atherosclerosis. But the current evidence strongly supports this concept.

Perhaps that's why a growing number of physicians are now prescribing MER/29. They wish to assure their hypercholesterolemic, coronary artery disease, and atherosclerotic patients this reasonable hope.

It is a decision facing every physician.

Complete bibliography and prescription information on request.



Still available... write for your copy of this full-length report.

MER/29
(triparanol)

Merrell

The Wm. S. Merrell Company
Division of Richardson-Merrell Inc.
Cincinnati, Ohio/Weston, Ontario

Trademark: MER/29®

Hall, Jay Edwin, from Maywood, Calif., to Bainbridge-Auburn Road, Chagrin Falls, Ohio
Hall, Willard K., from 1087 Dennison Ave., to 157 W. Patterson Ave., Columbus 2, Ohio
Hardin, Rollo C., from 11102 Bentley, to 137 Tidwell Road, Houston 22, Texas
Harrison, Robert T., from 2015 Kalamazoo Ave., S. E., to 2003 Burton St., S. E., Grand Rapids 6, Mich.
Hartman, Gilbert C., from Cuyahoga Falls, Ohio, to Kirksville Osteopathic Hospital, 800 W. Jefferson St., Kirksville, Mo.
Hartwell, Marion L., from 740 S. Flower St., to 1187 N. New Hampshire Ave., Los Angeles 29, Calif.
Hemingway, Thomas, from 6551 Pine Crest Circle, to 6531 Pine Crest Circle, Carmichael, Calif.
Henn, Thomas, from 4925 Franklin Ave., to 2711 Sampson St., Des Moines 13, Iowa
Hill, Albert S., from Eddington, Pa., to 2406 Street Road, Cornwells Heights, Pa.
Hogue, William B., from San Gabriel, Calif., to 17038 S. Bellflower Blvd., Bellflower, Calif.
Hughes, Raymond R., from 4206 Ayers St., to 130 S. Lexington Blvd., Corpus Christi, Texas
Huling, Ronald W., from Route 2, Box 326, to 525 Old Robstown Road, Corpus Christi, Texas

Jackson, William M., from 1757 W. 26th St., to Box 843, Erie, Pa.
Johnson, William M., from 9725 Homestead Road, to 6508 Laura Koppe Road, Houston 16, Texas
Johnston, Sturgis E., from North Madison, Ohio, to 1113 Indiana Ave., La Porte, Ind.
Jones, H. E., from Southfield, Mich., to 700 S. 26th St., Fort Smith, Ark.
Jordan, William W., from Carson City, Mich., to 116 E. Frank St., Caro, Mich.

Kaftan, Sheldon N., from Detroit, Mich., to 4000 W. Thirteen Mile Road, Royal Oak, Mich.
Kantor, Alan J., from St. Louis, Mo., to Doctors Medical Center, Manchester Road, Ellisville, Mo.
Karnatz, Raymond V., from 4010 N. 14th Ave., to 1730 W. Eva St., Phoenix 21, Ariz.
Kashata, Thomas Richard, from Sayville, N. Y., to 199 N. Wellwood Ave., Lindenhurst, N. Y.
Kehoe, Edward P., from 7806 Ley Road, to 8341 Tidwell Road, Houston 28, Texas
Kesson, Thomas J., from 5602 E. 22nd St., to 752 S. Craycroft, Tucson, Ariz.
Kirk, Lowell O., from South Gate, Calif., to 7960 Crescent Ave., Buena Park, Calif.
Klein, Donald, from Detroit, Mich., to 9823 Middlebelt Road, Livonia, Mich.
Kleinfield, Philip H., from 7503 Newportville Road, to 486 Stoneybrook Drive, E., Levittown, Pa.
Kligerman, Samuel, from Elkins Park, Pa., to 922 Marlton Pike, Erlton, N. J.
Klucka, Thomas J., from Wyandotte, Mich., to 12951 Oakdale, Southgate, Mich.
Kopelman, Fred M., from 80 N. 20th St., to 312 Capital Ave., N. E., Battle Creek, Mich.
Kovacs, Louis A., from 989 E. Brentwood Ave., to 432 W. Brentwood Ave., Detroit 3, Mich.
Krengel, Floyd, from Philadelphia, Pa., to 1003 Grand Ave., Asbury Park, N. J.

Lamb, Glenn F., from 1535 Park Ave., to Lamb Memorial Hospital, 1560 Humboldt St., Denver 18, Colo.

6th EDITION

Hollander—Arthritis and Allied Conditions

A Textbook of Rheumatology

Edited by JOSEPH LEE HOLLANDER, M.D.

Associate Professor of Medicine, School of Medicine, University of Pennsylvania;
Chief of Arthritis Section, University Hospital

8 SECTION EDITORS • 30 CONTRIBUTING EDITORS

This book is a virtual one-volume library on every phase of arthritis and allied conditions. Written by 39 highly regarded authorities, it is unquestionably one of the most widely accepted works on the subject available today.

Here is a cross-section of the contents:

Selye and Bajusz on Stress; Larson on the L.E. Cell Phenomenon; McEwen on Arthritis with Ulcerative Colitis; Vaughan on Immunological Considerations; Shulman and Harvey on Systemic Lupus Erythematosus; Howell on Metabolic Bone Disease; Calkins and Cohen on Amyloidosis; Rodman on Blood Dyscrasias; Jackson on the Cervical Syndrome; Castor on the Connective Tissue; Bunim on Alkaptonuria, Ochronosis and Ochronotic Arthritis. This is a highly dependable guide for every progressive physician.

6th Edition. *1306 Pages.* *417 Illustrations.* *$20.00*

Washington Square **LEA & FEBIGER** Philadelphia 6, Pa.

A-130

ORIGINAL RESEARCH SERVING THE PHYSICIAN

SANDOZ

in leading headache clinics,
the drug of choice for migraine is

CAFERGOT®

First thought in migraine:

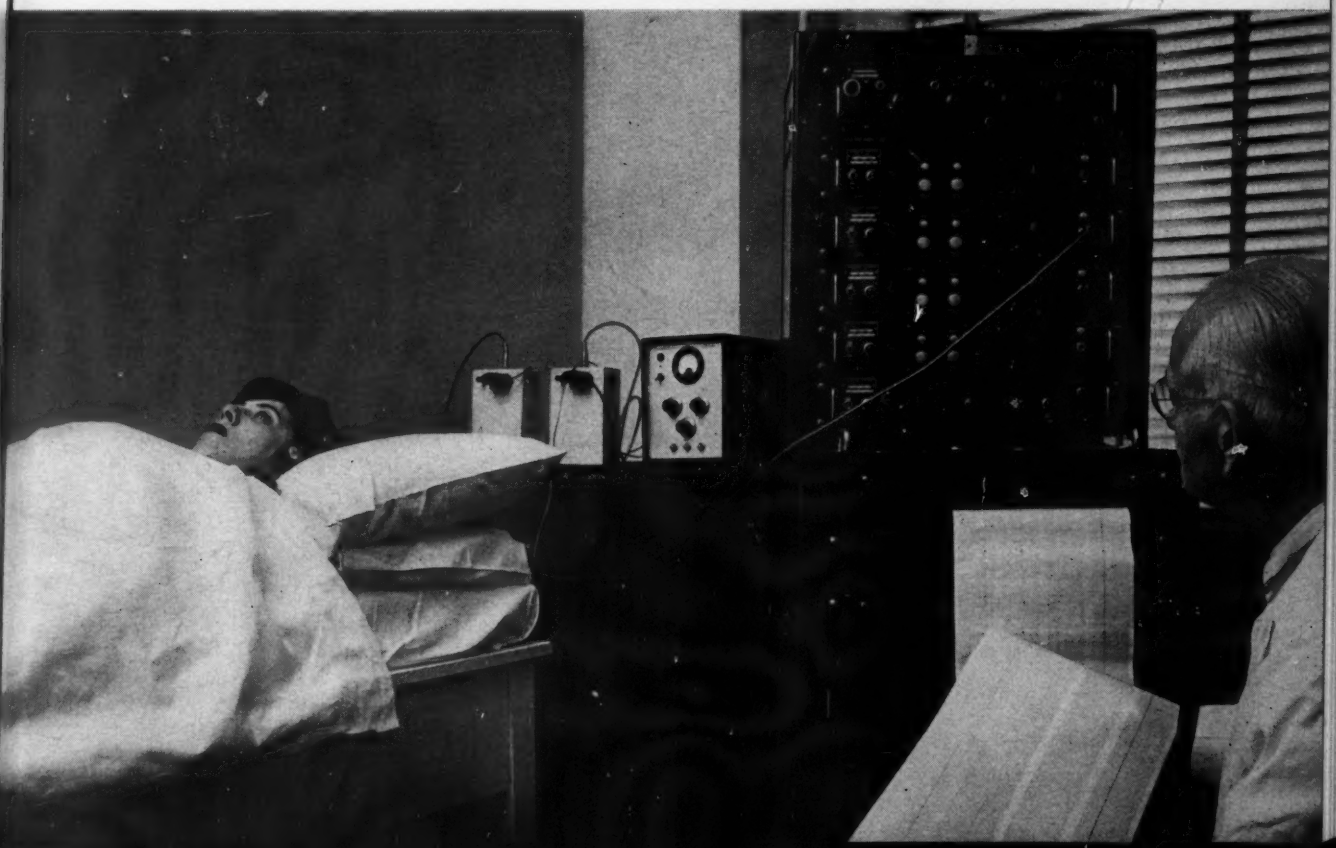
CAFERGOT TABLETS: ergotamine tartrate 1 mg., caffeine 100 mg. (Color: light gray, sugar-coated.) Dosage: 2 at first sign of attack; if needed, 1 additional tablet every ½ hour until relieved (maximum 6 per attack).

CAFERGOT SUPPOSITORIES: ergotamine tartrate 2 mg., caffeine 100 mg. Dosage: 1 as early as possible in attack; second in 1 hour, if needed (maximum 2 per attack).

When the headache is associated with nervous tension and G.I. disturbance:

CAFERGOT P-B TABLETS: ergotamine tartrate 1 mg., caffeine 100 mg., Bellafoline 0.125 mg., pentobarbital sodium 30 mg. Warning: May be habit forming. (Color: bright green, sugar-coated.) Dosage: same as Cafergot Tablets.

CAFERGOT P-B SUPPOSITORIES: ergotamine tartrate 2 mg., caffeine 100 mg., Bellafoline 0.25 mg., pentobarbital sodium 60 mg. Warning: May be habit forming. Dosage: same as Cafergot Suppositories.



YOUR UNRESPONSIVE "ARTHRITIC" MAY BE SUFFERING FROM CHRONIC GOUTY ARTHRITIS

At least 5 per cent of all patients suffering from arthritis really have gouty arthritis.[1] Although frequently overlooked,[2] gouty arthritis is readily diagnosed if one remembers this possibility in all patients with chronic joint distress. Elevated serum uric acid levels, pain relief with colchicine and occurrence of tophi are valuable diagnostic aids. Once clinically confirmed, chronic gouty arthritis responds successfully to TRIURATE.®

TRIURATE combines in **one** tablet three effective agents for the management of gouty arthritis: FLEXIN® Zoxazolamine,* a potent uricosuric agent; Colchicine, for preventing acute attacks; and TYLENOL® Acetaminophen, the effective analgesic which does not interfere with uricosuric action. Thus, TRIURATE promptly relieves chronic discomfort, prevents acute flare-ups, reduces tophi, and prevents formation of new deposits.

TRIURATE

the full-range therapy for gouty arthritis and chronic gout

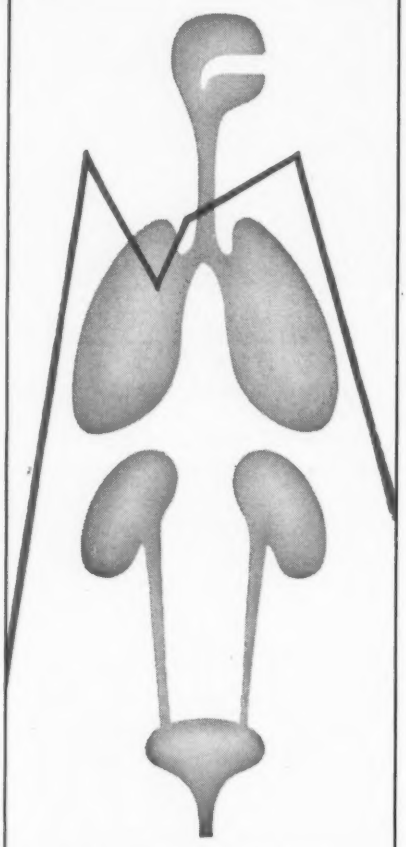
Average Dose: One tablet three times a day after meals. **Supplied:** Beige, scored tablets, imprinted McNEIL, bottles of 50. Each tablet contains: FLEXIN® Zoxazolamine® 100 mg., Colchicine 0.5 mg., and TYLENOL® Acetaminophen 300 mg.

1) Boland, E. W., World Wide Abstr. Gen. Med. 3:11, 1960. (2) Lockie, L. M., Am. J. Orthopedics 2:252, 1960.

U.S. Patent No. 2,890,985

McNEIL LABORATORIES, INC · FORT WASHINGTON, PA. McNEIL

Efficacy and Economy in Sulfa Therapy



High Tissue and Blood Levels

High blood levels produce antibacterial activity in deep tissue at the focus of infections. SULFOSE contains three independently soluble sulfonamides to help protect against crystalluria.

- SULFOSE is especially effective in urinary tract and upper respiratory infections
- Bacteria resistant to antibiotics may respond to SULFOSE
- SULFOSE causes fewer complications such as diarrhea, gastric upset, superinfections
- SULFOSE permits reserving the antibiotics for severe, fulminating infections
- SULFOSE is economical

SUSPENSION TABLETS

SULFOSE®

Triple Sulfonamides, Wyeth
(Trisulfapyridimines: Sulfadiazine, Sulfamerazine, Sulfamethazine)

Wyeth® SERVICE TO MEDICINE

For further information on limitations, administration, and prescribing of SULFOSE, see descriptive literature or current Direction Circular.

Wyeth Laboratories Philadelphia 1, Pa.

"just right" relief from pain ...be it subtle or severe

The need for relief of suffering can be met efficiently and with a high degree of safety with the 'Empirin' family of analgesics...carefully graded to give the proper degree of analgesia for each degree of pain.

'TABLOID' 'EMPIRIN' COMPOUND®

Acetophenetidin ..... gr. 2½
Acetylsalicylic Acid ..... gr. 3½
Caffeine ..... gr. ½

'TABLOID' 'EMPIRIN' COMPOUND® WITH CODEINE PHOSPHATE*

CODEINE PHOSPHATE — gr. ⅛ No. 1

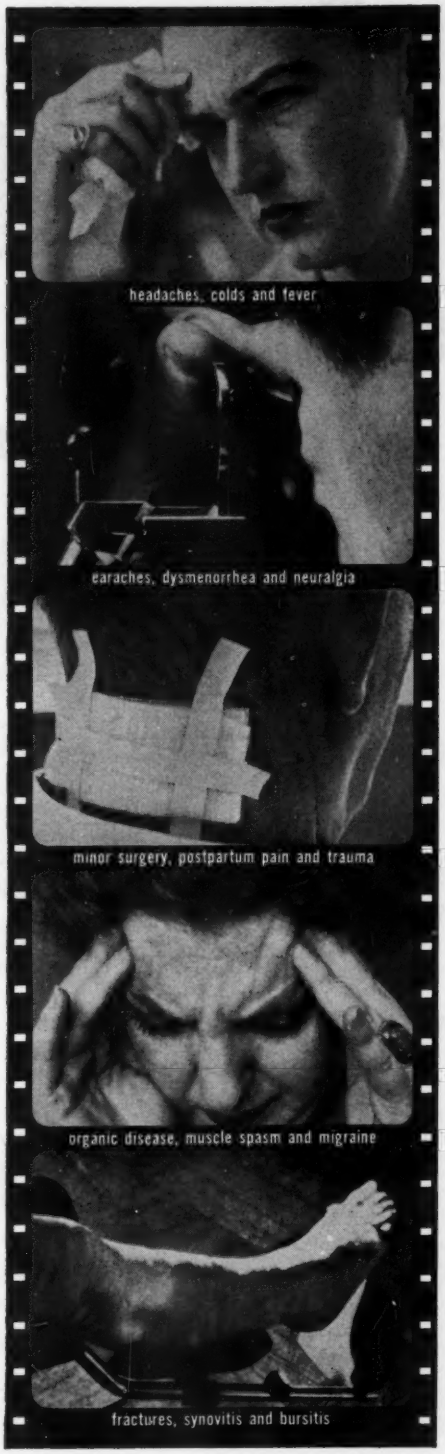
CODEINE PHOSPHATE — gr. ¼ No. 2

CODEINE PHOSPHATE — gr. ½ No. 3

CODEINE PHOSPHATE — gr. 1 No. 4

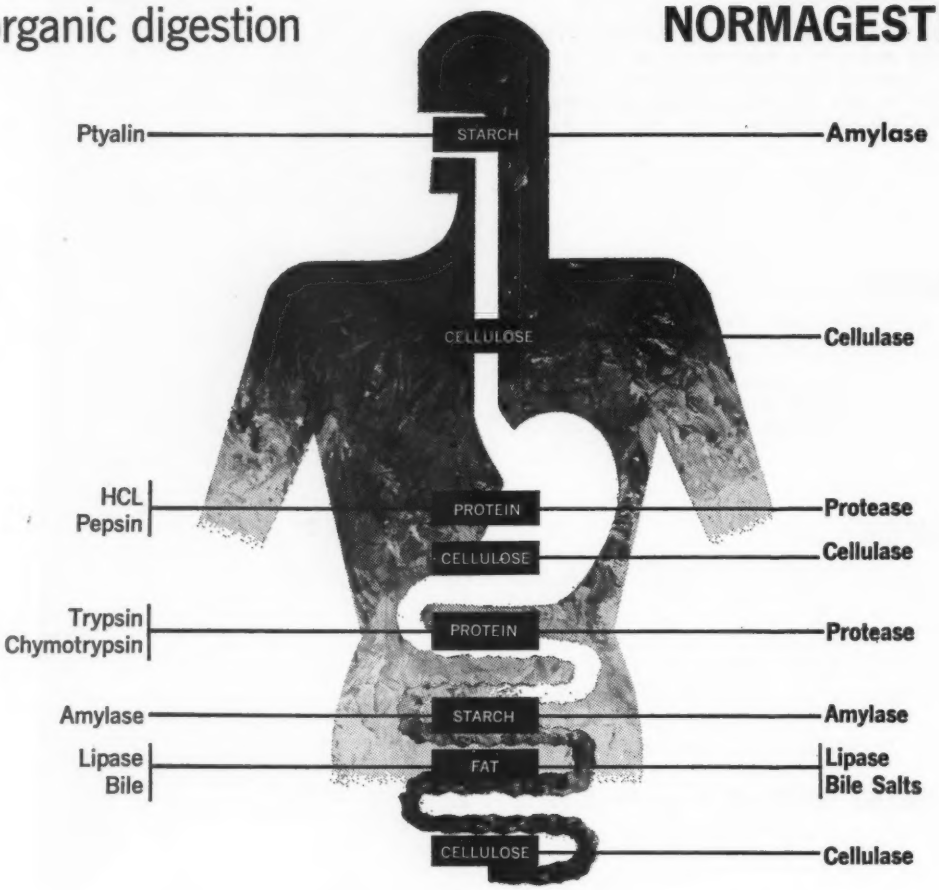
*Subject to Federal Narcotic Regulations. Available on oral prescription where state law permits.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.
Tuckahoe, New York


headaches, colds and fever
earaches, dysmenorrhea and neuralgia
minor surgery, postpartum pain and trauma
organic disease, muscle spasm and migraine
fractures, synovitis and bursitis

this is ...
organic digestion

this is ...
NORMAGESTion



this is the new VM 61

NORMAGEST

The complete natural digestant that handles cellulose too!
The digestant with standardized enzyme activity.

50 Tablets..... 4.00
100 Tablets..... 7.50

EACH TABLET CONTAINS:

Standardized a-Amylase	30 mgs.
Standardized Protease	6 mgs.
Standardized Lipase	2 Willstatter Units
Standardized Cellulase	2 mgs.
Standardized Pancreatin (equivalent Pancreatin N.F. 300 mgs.)	100 mgs.
Ox Bile Salts Iron Complexed	50 mgs.

VITAMINERALS INC.

GLENDALE 1, CALIFORNIA

Now arthritic flare-ups can be controlled with much lower steroid dosages

With Somacort to relax muscles and relieve pain, tender joints need far less steroid to reduce inflammation

Somacort is a safe, logical step-up in treatment during the rough days when your patients need more than salicylates to keep comfortable and active.

Soma, by itself, benefits many arthritics by relieving the muscle spasm and pain which arise from joint inflammation. Thus with Somacort, which combines Soma with prednisolone, the amount of steroid needed to control inflammation[1] can be kept within more conservative limits.

Somacort is well tolerated even when used for long-term therapy in more serious cases.

1. Wein, A. B.; The Use of Carisoprodol (SOMA) in Orthopedic Surgery and Rehabilitation, Miller, James G., ed., Wayne State University Press, Detroit, Michigan, 1959.

Recommended dosage: 1 or 2 tablets q.i.d. (Each tablet contains 350 mg. carisoprodol, 2 mg. prednisolone)

SOMACORT™

(carisoprodol, Wallace, with prednisolone)

Wallace Laboratories, Cranbury, New Jersey

Lamb, Howard Earl, from 1560 Humboldt St., to 1535 Park Ave., Denver 18, Colo.
Landis, Martin S., from Flat Rock, Mich., to 2105 West Road, Trenton, Mich.
Ledbetter, Harold C., from St. Louis, Mo., to Bell-Aire Plaza Shopping Center, N. Atlantic Ave., Daytona Beach, Fla.
Leone, Anthony G., from 1818 S. 15th St., to 1847 S. 15th St., Philadelphia 45, Pa.
Lester, R. Anton, Jr., from Kirksville, Mo., to Chandler, Texas
Levy, Ralph, from Philadelphia, Pa., to 224-18B Horace Harding Blvd., Bayside, L. I., N. Y.
Llewelyn, Arthur W., from 605 Dalies Ave., to 105 N. Sixth St., Belen, N. Mex.
Lyster, Sturgis C., from 298 East Avenue, N., to Lakeview General Hospital, 80 N. 20th St., Battle Creek, Mich.

Madziar, Roman J., from Irving, Texas, to 1143 S. Buckner St., Dallas 17, Texas
Mainster, Harris W., from 5435 Woodward Ave., to Zieger Osteopathic Hospital, 4244 Livernois Ave., Detroit 10, Mich.
Malone, Edward Ray, from Tulsa, Okla., to Box 29, Anderson, Mo.
Manchester, R. G., from Gainesville, Fla., to 313 Normandy Ave., New Smyrna Beach, Fla.
Martin, Robert M., from Pella, Iowa, to 2440 Tonoble Drive, Altadena, Calif.
Matheny, Sam D., from Chillicothe, Mo., to 1360 Ridgewood Ave., Holly Hill, Fla.
Millin, John J., from Warren, Ohio, to 1483 Liberator Ave., Allentown, Pa.

Molea, John S., from Tonawanda, N. Y., to Transit Road, Swormville, N. Y.
Morgan, Robert E., from National City Bldg., to 1136 Dallas Athletic Club Bldg., Dallas 1, Texas
Morgan, Samuel S., from National City Bldg., to 1136 Dallas Athletic Club Bldg., Dallas 1, Texas
Morris, Dareld R., from Lubbock, Texas, to 301 E. Sixth St., Bonham, Texas
Mosteller, Robert E., from Sandusky, Ohio, to 1196 Tallmadge Road, Cuyahoga Falls, Ohio
Murray, Edward J., Jr., from Cranston, R. I., to 65 W. Main St., Wickford, R. I.

Nash, Ernest F., from Detroit, Mich., to 24517 Princeton, St. Clair Shores, Mich.
Naughton, John J., Jr., from Grand Rapids, Mich., to 1514 Benner St., Philadelphia 49, Pa.
Newberry, Frederick M., from 2961 Calvert, to 10815 Mack Ave., Detroit 14, Mich.
Nichols, Richard E., from 1839 Milbank St., S. E., to 2851 Clyde Park Ave., S. W., Grand Rapids 8, Mich.
Northrop, Frederick H., from Ninth St. & Jackson Ave., to 1628 S. Main St., Tulsa 19, Okla.

Oakley, Perry G., from 312 Third St., to 304 Third St., Lowell, Ohio
Ober, Elizabeth K., from 401 Tsolas Bldg., to 427 Vigilans Bldg., 287 Pretorius St., Pretoria, Union of South Africa
Okin, Milton, from 1723 W. Ball Road, to 1717 W. Ball Road, Anaheim, Calif.
Olson, Dean R., from Carson City, Mich., to 3647 Hermosa Drive, Dayton 24, Ohio

SIL-SPRAY LUBRICANT IDEAL FOR INSTRUMENTS

Sil-Spray puts a tough, thin, non-gumming film on all metals. It remains stable at all temperatures. Stays on during sterilization.

SIL-SPRAY IS SAFE!
Sil-Spray is not oil. It is non-toxic and will not injure metal, rubber, paint or cloth. Special silicone formula requires no germicides or other additives.

ECONOMICAL
One can goes a long way. Save time by spraying instruments by the tray-full.
6 oz., $1.98—12 oz., $3.75

"GUMP" Prevents Broken Teeth
Prevents tooth damage by instruments during oral surgery. Gump is of soft rubber, held in place by suction. Fits either upper or lower teeth. Designed by a noted anesthesiologist.
Price, each, $1.50

Wocher's
609 COLLEGE ST. CINCINNATI 2, OHIO

A significant new development in walking heel design!

De Puy

Introduced in response to numerous requests from the medical profession for a lower, more comfortable walking heel for ambulatory cast patients, and one which could be anchored in the cast more securely. The F. B. CAST CUSHION is the result of extensive research, experimentation and clinical testing and brings you these many long awaited advantages.

F. B. CAST CUSHION

Easier to apply and ancher more securely than conventional walking heels. Deep criss-cross section spacing permits application of plaster bandage as normal figure eight wrapping. Raised tips on inner side set firmly in cast to prevent lateral movement.
Lower for greater patient comfort and elimination of forced limp... a true walking aid, not a stilt.
Strong, long wearing rubber sufficiently resilient to provide adequate cushioning and shock absorption. No-slip, no-mar tread.
Order a supply today... No. 845, $15.00 per dozen.

DePuy Manufacturing Co., Inc., Warsaw, Indiana

BASIC!

in ear, nose and throat therapy

These six medications have demonstrated through clinical trials, in countless patients, outstanding qualities of effectiveness and safety—qualities that have led to White's pre-eminence as a manufacturer of specialties for E. N. T. therapy. The pages that follow are a concise reminder of the clinical advantages offered by each. Complete information concerning the use of these specialties is available on request.

White WHITE LABORATORIES, INC. / Kenilworth, New Jersey

Otobiotic®

3.5 mg. neomycin (from sulfate) and 50 mg. sodium propionate per cc.

Antibiotic/Antifungal EAR DROPS
"...Better results than ever before..."* in OTITIS EXTERNA & CHRONIC OTITIS MEDIA

- controls infection • reduces exudation • stops pruritus • physiologic pH • relieves pain • does not distort otic landmarks • virtually nonsensitizing and nonirritating

Available in 15 cc. dropper bottles.

*Lawson, G. W.: Postgrad. Med. 22:501 (Nov.) 1957

PURE ANTIHISTAMINE ACTION

Disomer

YOUR ALLERGIC PATIENT REMAINS ASYMPTOMATIC AND ALERT!

94.7% effectiveness • side effects at placebo level

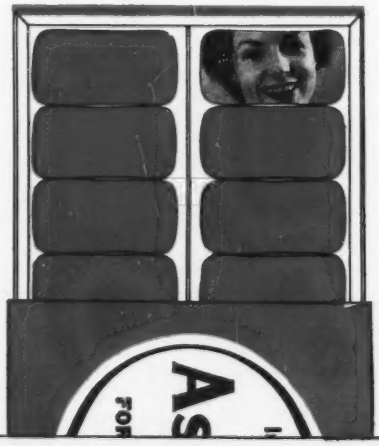
CHRONOTABS: (Sustained Action Tablets) 4 mg. and 6 mg., bottles of 100

TABLETS: 2 mg. scored, bottles of 100 SYRUP: 2mg./tsp., pt. bottles

Aspergum®

SOOTHES SORE THROATS

Available in handy pocket-packs of 16 and bottles of 36.



White **WHITE LABORATORIES, INC./ Kenilworth, New Jersey**

Otobione®

ANTI-INFLAMMATORY/Antibiotic/Antifungal Sterile EAR DROPS

Physiologic pH

Effective relief in 82% of 3334 cases* of external otitis, chronic otitis media and chronic mastoiditis with otorrhea. FORMULA: Prednisolone acetate, 5 mg., neomycin (from sulfate), 3.5 mg. and sodium propionate, 50 mg. per cc. Available in 5 cc. bottles with "steri-sealed" dropper. *Case reports on file, White Laboratories, Inc.

Disophrol

In nasal congestion and rhinorrhea due to head colds, allergies and sinusitis—

Decongests Nasal and Sinus Passages...
Dries Mucous Secretions!

A sensibly simple formula: Disomer (dexbrompheniramine maleate) 2 mg. d-isoephedrine sulfate 60 mg. Available in bottles of 100 scored tablets.

Orabiotic®

chewing gum troches

For oropharyngeal infections.

"A BACTERIOSTATIC BATH"* Releases a soothing flow of saliva that bathes sore throats with effective antibiotic and analgesic medications. Nonirritating and virtually nonsensitizing. Always a useful adjunct to systemic therapy.

FORMULA: Each troche contains Neomycin, 3.5 mg., Gramicidin, 0.25 mg., and Propesin, 2.0 mg. Available in packages of 10 and 20.

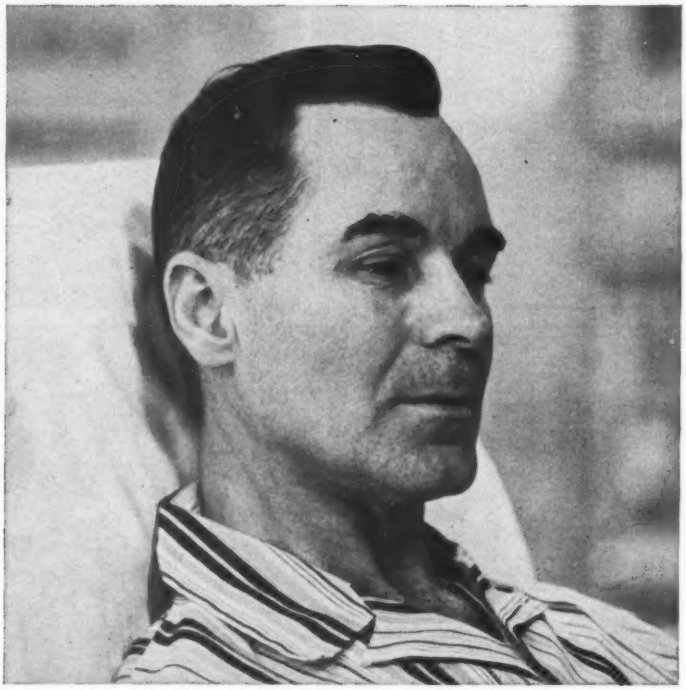
PROTECTS AGAINST SECONDARY HEMORRHAGE FOLLOWING TONSILLECTOMY

- reduces local postoperative pain and muscle spasm
- speeds resumption of normal diet by lessening postoperative discomfort

*Granberry, C., and Beatrous, W. P.: E.E.N.T. Mo. 36:294 (May) 1957.

White **WHITE LABORATORIES, INC.**/ Kenilworth, New Jersey

Peri-Colace meets the three major criteria for an effective laxative as established by physicians*



1. *virtual freedom from griping or other irritating side effects*
2. *clinically proven effectiveness*
3. *predictable action*

*Results of a survey of over 1,000 physicians conducted by the Bureau of Research, Inc., 555 W. Jackson Blvd., Chicago 6, Illinois (April, 1960).

Mead Johnson Laboratories

Symbol of service in medicine

in ano-rectal disorders

PERI-COLACE®

Anthraquinone derivatives from cascara and dioctyl sodium sulfosuccinate, Mead Johnson

reduces pain and trauma by eliminating constipation

"Bowel movements were formed, soft, and expelled without damage or irritation to the rectum, and without extrusion of hemorrhoids, even when the latter had been a deterrent to the use of laxatives."[1]

Peri-Colace, a unique combination of Peristim® and Colace® (dioctyl sodium sulfosuccinate), eliminates the need for postsurgical enemas in 9 out of 10 patients.[2]

Experience in practice has shown the unusual dependability of Peri-Colace.[1,3-5] Promptly, yet gently, it induces bowel evacuation in most patients within 8 to 12 hours.

References: (1) Smigel, J. O.; Lowe, K. J.; Hosp, P. H., and Gibson, J. H.: M. Times *86*:1521-1526 (Dec.) 1958. (2) Lamphier, T. A., and Lyman, F. L.: J. Internat. Coll. Surgeons *31*:420-423 (April) 1959. (3) Lamphier, T. A.: Am. J. Proctol. *8*:442-444 (Dec.) 1957. (4) Broders, A. C., Jr.: Am. J. Digest. Dis. *2*:483-486 (Sept.) 1957. (5) Turell, R.: Current M. Digest *26*:61-69 (Feb.) 1959.

390R61

Papageorge's, Nicholas Peter, Jr., from 4326½ Leimert Blvd., to 5816 W. 78th St., Los Angeles 45, Calif.
Parente, Paul A., from Garden City, Mich., to 29538 Orchard Lake Road, Farmington, Mich.
Pepper, John Lawrence, from Wilmington, Del., to 1452 Blackrock Road, Swarthmore, Pa.
Peterson, Joseph M., from 2424 Morrow Road, N. E., to 124 Tenth St., N. W., Albuquerque, N. Mex.
Pike, Robert E., from Garden City, Mich., to 90 State St., Albany 7, N. Y.
Pomeroy, Ira L., Jr., from Torrance, Calif., to Clare General Hospital, Clare, Mich.
Porzio, Ray N., from Miami, Fla., to Le Roy Hospital, 40 E. 61st St., New York 21, N. Y.
Powell, Harold Sidney, from Blackwood, N. J., to North Shore Drive, Route 1, Box 551, Timber Lakes, Williamstown, N. J.
Prineas, M. Mike, from Edmonds, Wash., to 1024 15th Ave., E., Seattle 2, Wash.

Ratner, Lawrence B., from 4100 E. 29th St., to 5602 E. 22nd St., Tucson, Ariz.
Rodgers, John A., from Columbus, Ohio, to 7-14 Essex Place, Fair Lawn, N. J.
Rogers, Frederick Walter, from Columbus, Ohio, to Doctors Osteopathic Hospital, 5500 39th St., Groves, Texas
Rosenthal, Gerald S., from Logan, Utah, to 3475 Harrison Blvd., Ogden, Utah
Rosenzweig, Harold H., from Mesa Memorial Hospital, to 1621 Gunnison Blvd., Grand Junction, Colo.
Rowley, Maurice S., from Levittown, Pa., to Bellevue Ave., & U.S. 1, Penndel, Pa.
Running, Edwin N., Jr., from Denver, Colo., to 5600 S. Bannock, Littleton, Colo.

Sage, Joseph H., from North Madison, Ohio, to Brentwood Hospital, 4110 Warrensville Center Road, Warrensville Heights, Ohio
Saita, Harold S., from Medical Park Royal, 24 Clyde, to 24 Clyde Medical Centre, Park Royal, West Vancouver, B. C., Canada
Salach, Roderick C., from Columbus, Ohio, to 447 Homestead Road, La Grange Park, Ill.
Sams, Daniel R., from Lake Wales, Fla., to Box 57, Bakersfield, Mo.
Sanders, H. W., from Alice, Texas, to Box 38, O'Donnell, Texas
Savar, Lewis, from Youngstown, Ohio, to 7312 Ruskin Road, Philadelphia 31, Pa.
Savarese, J. Charles, from 240 N. W. 183rd St., to 232 N. W. 183rd St., North Miami, Fla.
Schlack, Elgin L., from Chandler, Ariz., to Hotel Superstition Ho, Suite A9-A10., Apache Junction, Ariz.
Schulman, Charles, from Detroit, Mich., to 15885 Woodward Ave., Highland Park 3, Mich.
Schultz, Charles D., from 1805 Main St., to 602 E. 15th St., Davenport, Iowa
Scott, John R., from 4523 Pine St., to 2801 Maxwell St., Philadelphia 36, Pa.
Seablom-Carter, Maxine, from 8246 Menaul Blvd., N. E., to 1441 Wyoming Blvd., N. E., Albuquerque, N. Mex.
Shutman, Edward E., from 12719 Rose Ave., to 2410 W. Seventh St., Los Angeles 57, Calif.

FREE CATALOG and INFORMATION KIT!

COLWELL OFFICE RECORD SUPPLIES AND PROFESSIONAL STATIONERY for PHYSICIANS

- DAILY LOG RECORD BOOK
- COLWELL'S APPOINTMENT LOG
- PROFESSIONAL STATIONERY
- PATIENTS' RECORDS
- MEDICAL FORMS
- FILING SUPPLIES

Mail Coupon Today!

THE COLWELL COMPANY
265 Kenyon Road, Champaign, Ill.

Please send me the Colwell Catalog for Physicians PLUS Information Kit containing actual samples, detailed descriptions, and the newest items in the Colwell line of Practice Management Aids.

Dr._____

Address_____

City_____ State_____

LET

Health

BE YOUR LINK WITH THE PUBLIC

HEALTH—in your reception room or mailed to your patients and business associates—is a valuable public relations and health education tool.

Only 10¢ a copy, $1.00 a year (10 issues—May-June and July-August combined), and $2.50 for three years.

AMERICAN OSTEOPATHIC ASSOCIATION
212 E. Ohio Street
Chicago 11, Illinois

After 10 weeks of therapy— a clear skin, a new personality, a new world of fun and laughter

pHisoHex, used as a daily, exclusive wash, enhances any treatment for acne. Because it contains 3 per cent hexachlorophene, it supplies *continuous* antibacterial action to help combat the infection factor. pHisoHex cleanses better than soap because it is 40 per cent more surface-active.

Used together, pHisoHex and new keratolytic pHisoAc Cream provide basic complementary topical therapy for patients with acne—to unplug follicles and to help prevent comedones, pustules and scarring.

New pHisoAc Cream dries, peels and helps degerm the skin; flesh-toned, it tends to hide acne lesions as they heal.

pHisoHex, in unbreakable squeeze bottles of 5 oz. and NEW plastic bottles of 1 pint; pHisoAc in 1½ oz. tubes.

pHisoHex and pHisoAc, trademarks reg. U. S. Pat. Off.

Winthrop LABORATORIES
New York 18, N.Y.

CLINICAL PHOTOGRAPHS

Acne vulgaris before treatment

For treatment at home, this patient washed her face daily with pHisoHex and kept pHisoAc on her face twenty-four hours a day.

Nine office treatments consisted of mechanical removal of blackheads and applications of carbon dioxide slush. No other medication was given.

After 10 weeks of therapy

For Acne—pHisoHex® and

antibacterial, nonalkaline, nonirritating, hypoallergenic detergent

pHisoAc® Cream

keratolytic

have you heard, Doctor?

Chymoral®

cuts healing time in accidental trauma

Whether the patient presents the simple edema and inflammation of a sprained ankle or the severe lacerations and bruising from a violent accident, immediate adjunctive use of Chymoral speeds resolution of traumatic manifestations. Chymoral modifies the inflammatory reaction to trauma, dissipates edema and blood extravasates, improves regional circulation, and thus aids the body's natural reparative activities. In other general practice areas, too, Chymoral cuts healing time. Excellent results have been achieved in acute sinusitis, bronchitis, bronchial asthma, emphysema, chronic pelvic inflammatory disease, and acute thrombophlebitis.[1-5]

Controls inflammation, curtails swelling, curbs pain

1. Beck, C., *et al.*: Clin. Med. 7:519, 1960. 2. Teitel, L. H., *et al.*: Indust. Med. 29:150, 1960. 3. Billow, B. W., *et al.*: Southwestern Med. 41:286, 1960. 4. Clinical Reports to the Medical Department, Armour Pharmaceutical Company, 1960. 5. Taub, S. J.: Clin. Med. 7: 2575, 1960.

© Jan. 1961, A.P. Co.

ARMOUR PHARMACEUTICAL COMPANY
KANKAKEE, ILLINOIS • *Armour Means Protection*

CHYMORAL

Chymoral is an ORAL anti-inflammatory enzyme tablet specifically formulated for intestinal absorption. Each tablet provides enzymatic activity, equivalent to 50,000 Armour Units, supplied by a purified concentrate which has specific trypsin and chymotrypsin activity in a ratio of approximately six to one. ACTION: Reduces inflammation of all types; reduces and prevents edema except that of cardiac or renal origin; hastens absorption of blood and lymph extravasates; helps to liquefy thick tenacious mucous secretions; improves regional circulation; promotes healing; reduces pain. INDICATIONS: Chymoral is indicated in respiratory conditions such as asthma, bronchitis, rhinitis, sinusitis; in accidental trauma to speed absorption of hematoma, bruises, and contusions; in inflammatory dermatoses to ameliorate acute inflammation in conjunction with standard therapies; in gynecologic conditions such as pelvic inflammatory disease and mastitis; in obstetrics as episiotomies and breast engorgement; in surgical procedures as biopsies, hernia repairs, hemorrhoidectomies, mammectomies, phlebitis and thrombophlebitis; in genitourinary disorders as epididymitis, orchitis and prostatitis; in dental and oral surgery as fractures of the mandible or maxilla, difficult or multiple extractions, and alveolectomies. CONTRAINDICATIONS: None known. INCOMPATIBILITIES: None known. Antibiotics as well as generally accepted measures may be coadministered. SIDE EFFECTS: Mild gastric upsets, rarely encountered. DOSAGE: Recommended initial dose is two tablets q.i.d.; one tablet q.i.d. for maintenance. SUPPLIED: Bottles of 48 tablets.

CHYMORAL

ORAL systemic anti-inflammatory enzyme tablet

anorectal comfort...that lasts

Patients want full, fast and lasting relief from the distressing symptoms of common anorectal disorders.

For hemorrhoids, proctitis and pruritus ani, *start therapy* with ANUSOL-HC—2 suppositories daily for 3 to 6 days—to reduce inflammation, relieve pain and itching, and shorten total treatment time. *Maintain patient comfort* with regular ANUSOL—1 suppository morning and evening and after each evacuation to prevent recurrence of symptoms. Supplement with Anusol Unguent as required.

Neither Anusol nor Anusol-HC contains anesthetic agents which might mask symptoms of serious rectal pathology.

anusol® | **anusol-HC®**

hemorrhoidal suppositories and unguent | *hemorrhoidal suppositories with hydrocortisone acetate, 10 mg.*

WARNER CHILCOTT

MORRIS PLAINS N.J.

MS 12

Anusol® of TERRAL SELUSIL PROLOID PENITRATE BARBELAMINE

Supportive Measures for the Osteopath's Reference Library from Lippincott

1. **POLIOMYELITIS**
Papers and Discussions Presented at the Fifth International Poliomyelitis Conference. 435 Pages. 178 Illustrations. NEW 1961. $7.50.

2. **ORAL MEDICINE: Diagnosis and Treatment (NEW 4TH EDITION)**
Burket. 583 Text Pages. 368 Illustrations, 40 in Color (on 10 Plates). 1961. $15.00.

3. **PROCEEDINGS OF THE 4TH NATIONAL CANCER CONFERENCE**
Sponsored by the American Cancer Society, Inc. and National Cancer Institute (U.S. Public Health Service). 130 Contributors. 774 Pages. 242 Figures, 231 Tables. NEW 1961. $9.00.

4. **AN ATLAS OF OPHTHALMIC SURGERY**
Berens & King. 623 Pages. 273 Illustrations. NEW 1961. $28.00.

5. **CLINICAL ORTHOPAEDICS #19—Soft-Tissue Tumors**
275-350 Pages in Each Volume. Illustrated. Single Copies $7.50. Sustaining Subscription $6.00 Per Volume.

6. **HISTOPATHOLOGY OF THE SKIN (NEW 3RD EDITION)**
Lever. 650 Pages. 320 Illustrations, 8 in Color. 1961. $15.00.

7. **A MIRROR UP TO MEDICINE**
Corcoran. 504 Pages. NEW 1961. $5.75.

8. **HISTOLOGY (NEW 4TH EDITION)**
Ham & Leeson. 942 Pages. 589 Illustrations, 8 in Color. 1961. $11.00.

9. **THE PRACTITIONER'S HANDBOOK**
Thomson. 711 Pages. 21 Illustrations. NEW 1961. *United States Market Only.* $12.50.

10. **ESSENTIALS OF NEUROLOGY**
Walton. 422 Pages. 12 Illustrations. NEW 1961. *North American Market Only.* $6.75.

11. **DISEASE AND INJURY**
Brahdy. 482 Pages. 9 Illustrations. NEW 1961. $12.50.

12. **DIAGNOSTIC CYTOLOGY: And Its Histopathologic Bases**
Koss & Durfee. 380 Pages. 776 Illustrations, 6 in Color. NEW 1961. $16.50.

13. **MANUAL OF CLINICAL BACTERIOLOGY**
Kimler. 201 Pages. 41 Illustrations. Paperbound. NEW 1961. $4.75.

14. **SOME REFLECTIONS ON GENIUS And Other Essays**
Brain. 192 Pages. Illustrated. NEW 1961. *North American Market Only.* $6.00.

15. **HANDBOOK OF PHYSIOLOGY (NEW 43RD EDITION)**
McDowall. 759 Pages. Profusely Illustrated. 1961. *United States Market Only.* $12.50.

J. B. LIPPINCOTT COMPANY
East Washington Square, Philadelphia 5, Pa.
In Canada: 4865 Western Avenue, Montreal 6, P.Q.

Please send me the books the numbers of which are circled below:

1 2 3 4 5 6 7 8
9 10 11 12 13 14 15

NAME

ADDRESS

CITY ZONE STATE

☐ *Payment Enclosed* ☐ *Charge My Account*
☐ *Convenient Monthly Payments* JAOA-8-61

Siering, William J., Jr., from 890 Dexter Drive, to 611 N. Hockett Ave., Porterville, Calif.
Sikkenga, A. Leon, from 710 Florida Bank Bldg., to 710 One North Orange Bldg., Orlando, Fla.
Skufca, Robert A., from Cuyahoga Falls, Ohio, to 3993 Center Road, Brunswick, Ohio
Slocum, Robert E., from 5003 Ross Ave., to 1711 N. Garrett St., Dallas 6, Texas
Smith, Kenneth L., from Cranston, R. I., to Danielson Pike, North Scituate, R. I.
Sprague, Dawin Clark, from Tulsa, Okla, to 16 N. Parish Ave., Johnstown, Colo.
Steinberg, Martin, from Detroit, Mich., to 27452 W. Seven Mile Road, Livonia, Mich.
Stevenson, Robert M., from Kent Nat'l Bank Bldg., to 227 S. Depeyster St., Kent, Ohio
Storey, Hyde H., from 409-10 Union Savings & Trust Bldg., to 192 Washington Ave., N. W., Warren, Ohio
Strickman, Ronald, from Saginaw, Mich., to 2830 Ocean Ave., Brooklyn 35, N. Y.
Stute, William D., from San Diego, Calif., to 637 E. Elm St., Coalinga, Calif.
Sutherland, Fordyce M., from 525 Parkview Drive, to 45505 N. Territorial Road, Plymouth, Mich.
Swart, William M., from 1950 W. Indian School Road, to 1613 S. 16th St., Phoenix 34, Ariz.

Teplitz, Gerald, from Detroit, Mich., to 4619 Avenue I, Brooklyn 34, N. Y.
Thomas, Fred B., from 7525 Scyene Road, to 8905 Lake June Road, Dallas 17, Texas
Thompson, Ted B., from 1100 E. Cowden, to 1504 N. Big Spring St., Midland, Texas
Tolle, Cora M., from Tombstone, Ariz., to Pioneers Home, Prescott, Ariz.
Tompson, G. W., from 10334 Palestine St., to 1313 Holland Ave., Box 24218, Houston 29, Texas
Toohey, James Joy, from Grand Prairie, Texas, to 127 W. Church St., Lewisville, Texas
Tracy, Dean Ellison, from Denver, Colo., to 7301 N. Federal Blvd., Westminster, Colo.
Turner, Sidney A., from 329 Van Ness Ave., to 2816 N. Blackstone Ave., Fresno 3, Calif.

Waddel, Harold C., from Box 208, to Route 1, Box 322, Schwenksville, Pa.
Weaver, Robert T., from Wilmington, Del., to Route 3, Box 199, Pottsville, Pa.
Weiss, Paul Joel, from 2069 W. Grand Blvd., to Zieger Osteopathic Hospital, 4244 Livernois Ave., Detroit 10, Mich.
Whitaker, Richard W., from Grove City, Pa., to 6502 N. 35th Ave., Phoenix 17, Ariz.
Whittemore, Joe D., from 5003 Ross Ave., to 3610 Loganwood Drive, Dallas 27, Texas
Wilson, Samuel M., from 807-08 W. I. Hollingsworth Bldg., to 3507 Laclede Ave., Los Angeles 39, Calif.
Winans, Carl W., from Columbus, Ohio, to 349 Mecca St., Cortland, Ohio
Wisely, Daniel Lee, from Flint, Mich., to 83 Nepessing St., Lapeer, Mich.
Witt, Harold W., Jr., from Tulsa, Okla., to 4500 N. Forest Ave., Kansas City, North, 16, Mo.
Wittenberg, Henry T., Jr., from Kansas City, Mo., to 11109 Winner Road, Independence, Mo.
Wozniak, Edward G., from Grove City, Pa., to 315 Cedar Ave., Pitman, N. J.
Wright, Russell M., from Fort Lauderdale, Fla., to 15885 Woodward Ave., Detroit 3, Mich.

Yogus, Edward, from 13835 Northline, to 12118 Dix-Toledo, Southgate, Mich.

in peptic ulcer...

prescribe the antacid with protective coating action

Gelusil protects the peptic ulcer patient against pain and promotes natural healing by coating the crater with two long-lasting demulcent gels. Pleasant-tasting Gelusil neutralizes *and* adsorbs excess gastric acid—is inherently nonconstipating—*contains no laxative.* Here is the superior antacid adjuvant for any program of ulcer management—best, too, for fast relief in gastritis, hyperacidity and "heartburn." Tablets and liquid—each tablet or teaspoonful contains aluminum hydroxide (Warner-Chilcott) 4 gr. and magnesium trisilicate U.S.P. 7½ gr.

the physician's antacid

GELUSIL®

Mobogen of Teoral Proloid Peritrate Mandelamine

WARNER CHILCOTT

MORRIS PLAINS, N.J.

MS12

*New Product Announcement

a significant
achievement in
corticosteroid
research

HALDRONE™

(*paramethasone acetate, Lilly*)

Æsculapius

predictable
anti-inflammatory
effect

Lilly
QUALITY / RESEARCH / INTEGRITY

Haldrone is a potent synthetic corticosteroid with marked anti-inflammatory activity. In steroid-responsive conditions, it provides predictable anti-inflammatory effects with a minimum of untoward reactions. Gratifying response has been observed in patients transferred from other corticosteroids to Haldrone. There is relatively little adverse effect on electrolyte metabolism. With Haldrone, sodium retention is unlikely, psychic effects are minimal, and there appears to be freedom from muscle weakness and cramping.

Haldrone, 2 mg., is approximately equivalent to

Cortisone	25 mg.
Hydrocortisone	20 mg.
Prednisone or prednisolone	5 mg.
Triamcinolone or methylprednisolone	4 mg.
Dexamethasone	0.75 mg.

Although the incidence of significant side-effects is low, the usual contraindications to corticosteroid therapy apply to Haldrone.

Supplied in bottles of 30, 100, and 500

Tablets Haldrone, 1 mg., Yellow (scored)
Tablets Haldrone, 2 mg., Orange (scored)

ELI LILLY AND COMPANY • INDIANAPOLIS 6, INDIANA, U.S.A.

140041

PINWORMS?

Povan SINGULARLY EFFECTIVE IN A SINGLE DOSE

(pyrvinium pamoate, Parke-Davis)

POVAN provides a simplified and clinically proved means of bringing a common medical problem under control. Through its unusual ability to clear most cases of pinworm infection with just one dose, POVAN permits this problem to be dealt with in a practical manner...preferably on a family or institution-wide basis.

POVAN is well tolerated... readily accepted in both dosage forms...and not appreciably absorbed through the gastrointestinal tract. Its single-dose efficacy makes therapy not only convenient, but economical as well.

Supplied: POVAN is available in suspension or tablet form. The pleasant-tasting, strawberry-flavored suspension is supplied in 2-oz. bottles and the tablets in bottles of 25.

The suspension contains pyrvinium pamoate equivalent to 10 mg. pyrvinium base per cc. The sugar-coated tablets each contain pyrvinium pamoate equivalent to 50 mg. pyrvinium base. *Dosage:* Children and adults, a single oral dose equivalent to 5 mg. per Kg. of body weight. *Precautions:* Infrequent nausea and vomiting and intestinal complaints have been reported. Tablets should be swallowed whole to avoid staining teeth. Will color stools a bright red. Suspension will stain most materials.

PARKE-DAVIS

65151 PARKE, DAVIS & COMPANY, Detroit 32, Michigan

Young, Andrew Roland, from Grand Prairie, Texas, to 1717 N. Garrett Ave., Dallas 6, Texas
Young, Clayton R., from 2515 S. W. 59th St., to 2519 S. W. 59th St., Oklahoma City 19, Okla.
Young, Donald D., from Springerville, Ariz., to 55 S. Stapley Drive, Mesa, Ariz.
Young, Morris H., from Detroit, Mich., to 27448 W. Seven Mile Road, Livonia, Mich.

Zilvitis, Bruno J., from Cicero, Ill., to 15407 W. Warren Ave., Dearborn, Mich.

Applications for membership

California

Hazeltine, George H., (Renewal) 308 First Western Bank Bldg., Pasadena
Aby, Charles W., (Renewal) 30 H St., San Rafael
Cordy, Edmond H., (Renewal) 680 Graham Hill Road, Santa Cruz

Florida

Kaelber, F. M., (Renewal) 4032 Red Rock Lane, Sarasota

Iowa

Richardson, Robert K., (Renewal) 714 E. State St., Algona
Lyle, John M., (Renewal) 6 Howard St., Colfax

Missouri

Scamahorn, G. F., (Renewal) Reid Hospital & Clinic, 17th & Central Ave., Bethany

New York

Corlis, Blanche A., (Renewal) 1008 W. Center St., Medina

Ohio

Flynn, John P., (Renewal) 127 E. State St., Alliance

Pennsylvania

Slifer, Harry L., (Renewal) 800 Fanshawe St., Philadelphia 11

Texas

Stone, Jerome Barnes, (Renewal) Box 157, Groveton

CANADA

Quebec

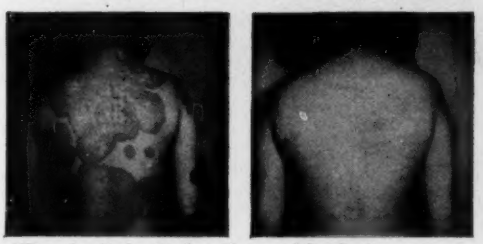
Marshall, Robert M., (Renewal) 1468 Bishop St., Montreal 25

in psoriasis

Alphosyl®

allantoin and special coal tar extract

widely prescribed
clinically proven/cosmetically elegant



"Psoriasis is, today, incurable, but, psoriasis can be a very manageable disease."[1] In a recent study of 214 chronic psoriatics treated with ALPHOSYL "...every patient manifested some favorable response."[1]

1. Welsh, A. L.: Report, Conference on the Management of Chronic Dermatoses, University of Cincinnati College of Medicine, Cincinnati, Ohio, November 4-5, 1959.

Available: Alphosyl Lotion in 8 oz. bottles.

REED & CARNRICK / Kenilworth, New Jersey

Kwell®

ERADICATES PEDICULOSIS
IN A 4 MINUTE SHAMPOO

SEBICAL™

allantoin/hexachlorophene/special coal tar extract

CREAM AND SHAMPOO

CLEARS SCALP SEBORRHEAS
FROM CRADLE CAP TO DANDRUFF

BEHAVIOR PROBLEMS IN CHILDREN...

Mellaril®

THIORIDAZINE HCl

provides highly effective tranquilization, relieves agitation, apprehension, anxiety

and "screens out" certain side effects of tranquilizers, making it virtually free of:

"The aim of current chemical, pharmacological, and clinical investigations of the phenothiazines is to find derivatives possessing potent and selective tranquilization with a minimum of toxic action.... In agreement with the published results of other investigators, we believe that thioridazine [Mellaril] shows a greater specificity of tranquilizing action and freedom from serious toxic effects when compared with some of the other phenothiazines."[1]

Behavior Problems In Children: "At the present time Thioridazine hydrochloride [Mellaril] would appear to increase adaptation and learning of the hyperactive child, in school, at home, and at play. On the basis of this study,* 8 out of 10 hyperactive children placed on a standard dosage of Thioridazine hydrochloride [Mellaril] 10 mg. t.i.d., can remain in school. This improvement has occurred without the appearance of untoward side effects such as: sedation and lethargy...extrapyramidal symptoms...."[2]

Mellaril is indicated for varying degrees of agitation, apprehension and anxiety in both ambulatory and hospitalized patients.

Usual starting dose: Non-psychotic patients—10 or 25 mg. t.i.d.; Psychotic patients—100 mg. t.i.d. Dosage must be individually adjusted until optimal response. Maximum recommended dosage: 800 mg. daily. Supply: Mellaril Tablets, 10 mg., 25 mg., 50 mg., 100 mg.

1. David, N. A., Logan, N. D., and Porter, G. A.: Evaluation of Thioridazine (Mellaril), a new phenothiazine, in the hospitalized patient, A.M. & C.T. 7:364, June 1960.
2. Zarling, V. Richard and Hogan, J.: Control of the Organic Hyperkinetic Behavior Syndrome in the Elementary School Child, Scientific Exhibit, American Academy of Pediatrics, Chicago, October 5-8, 1959.

*Study of 21 elementary school "problem" children.

ORIGINAL RESEARCH SERVING THE PHYSICIAN

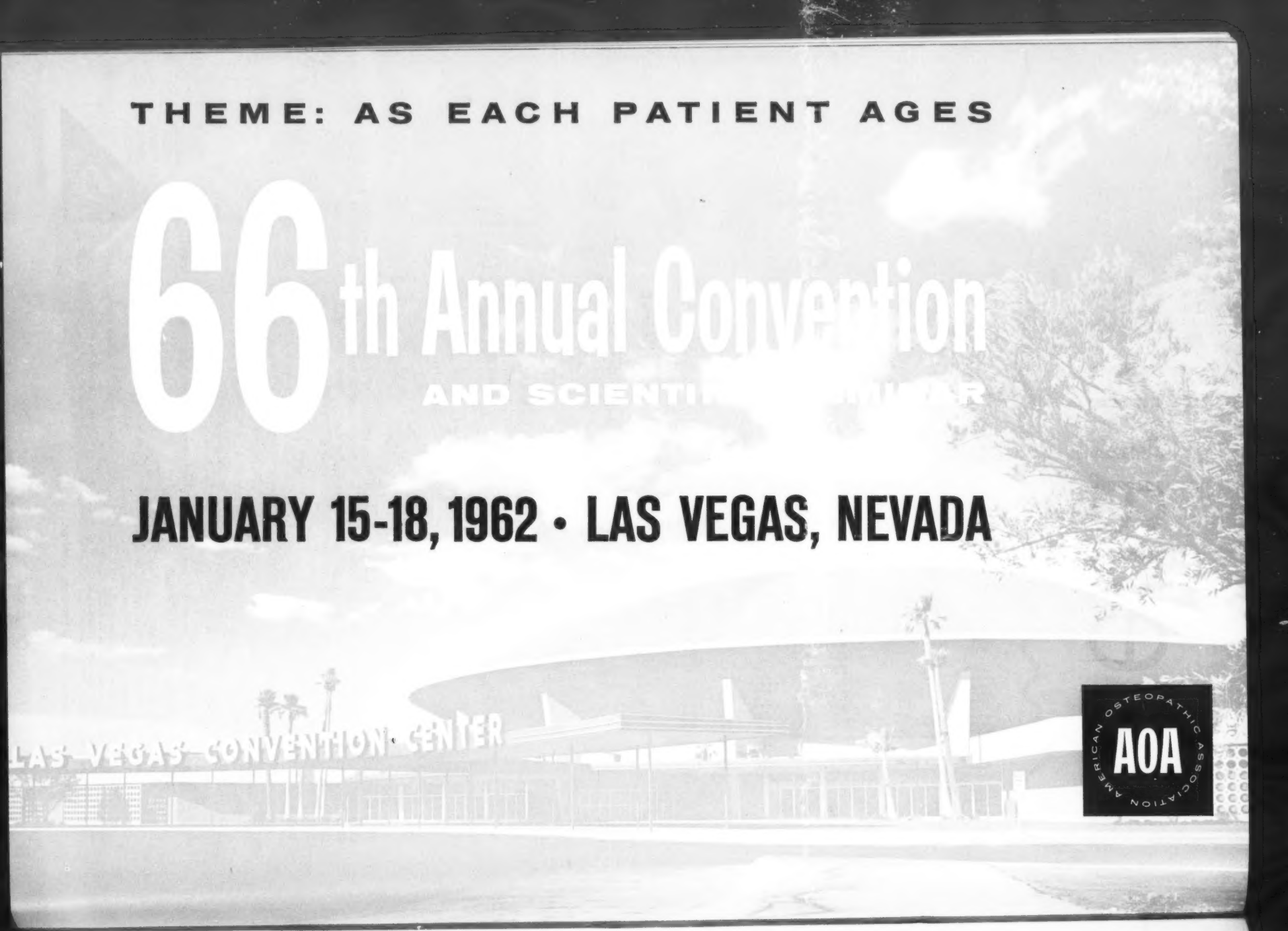
SANDOZ

THEME: AS EACH PATIENT AGES

66th Annual Convention

AND SCIENTI[illegible]R

JANUARY 15-18, 1962 • LAS VEGAS, NEVADA



ADVERTISERS' INDEX

Abbott Laboratories, A-35, 36
Alkalol Co., The, A-111
American Ferment Div., Breon Laboratories, Inc., A-103
American Osteopathic Association, A-90, 112, 144, 156
American Sterilizer Co., A-70
Ames Company, Inc., A-105
Amfre-Grant, Inc., A-92
Armour Pharmaceutical Co., A-146
A-T Surgical Co., A-111
Ayerst Laboratories, A-126

Baker Laboratories, Inc., The, A-23
Bard-Parker Co., Inc., A-81
Baxter, Don, Inc., A-77, 78
Becton, Dickinson & Co., A-94
Borcherdt Co., A-112
Breon Laboratories, Inc., A-123
Burdick Corp., The, A-104
Burns Cuboid Company, 112
Burroughs Wellcome & Co., 135

Chatham Pharmaceutical, Inc., A-157
Ciba Pharmaceutical Products, A-121, Cover 4
Colwell Co., The, A-144

DePuy Mfg. Co., A-138
Desitin Chemical Co., A-106
Doho Chemical Corp., A-93
Dome Chemicals, Inc., A-13

Eaton Laboratories, A-52, 71, 82

Flint, Eaton & Co., A-64, 118, 119

Gebauer Chemical Co., A-111
General Electric Company, A-37
Gerber Products Co., A-69

Hoyt Pharmaceutical Corp., A-63

Irwin, Neisler & Co., A-42

Kremers-Urban Co., A-124

Lakeside Laboratories, Inc., A-68
Lea & Febiger, A-130
Lederle Laboratories, A-7, 8, 9, 32, 33, 86, 115, 122
Leeming, Thos., & Co., Inc., A-83
Lilly, Eli & Co., A-80, 150, 151
Lippincott, J. B., Co., A-148
Lloyd Bros., Inc., A-22
Loma Linda Food Company, A-114
Lorvic Corp., The, A-102

Maltbie Labs., Div., Wallace & Tiernan, Inc., A-30, 109
McNeil Laboratories, Inc., A-10, 11, 59, 76, 132, 133
Mead Johnson & Co., A-45, 85, 142, 143
Merck Sharp & Dohme, A-14, 58, 74, 75, 88, 99, 100, 101
Merrell, The Wm. S., Company, A-116, 128, 129, 158

Nordson Pharmaceutical Labs., Inc., Cover 2

Ortho Pharmaceutical Corp., A-12
OTC Div. Surgical Appliance Industries, Inc., A-97

Parke, Davis & Co., A-21, 152
Pfizer Laboratories, A-40, 41
Philips Roxane, Inc., A-25
Pitman-Moore Co., A-48

Reed & Carnrick, A-153
Riker Laboratories, A-26, Cover 3
Robins, A. H., Co., Inc., A-20
Roche Laboratories, A-28, 29, 43
Roerig, J. B., & Co., A-110
Roussel Corp., A-87, 98

Sandoz Pharmaceuticals, A-24, 50, 51, 131, 154, 155
Saunders, W. B., Co., A-4
Schering Corp., A-3, 39, 53, 66, 67, 127
Schmid, Julius, Inc., A-107
Searle, G. D., & Co., A-5, 56, 57
Sherman Laboratories, A-89
Shield Laboratories, A-108
Smith Kline & French Labs., A-15
Squibb, E. R., & Sons, A-38
Stuart Co., The, A-17, 18, 34, 54, 79, 113, 125
Syntex Laboratories, Inc., A-16

Upjohn Co., A-31, 49
U. S. Vitamin & Pharmaceutical Corp., A-46, 47

Vitaminerals, Inc., A-136

Wallace Laboratories, A-27, 44, 55, 65, 72, 73, 117, 137
Warner-Chilcott Laboratories, Div., A-1, 147, 149
White Laboratories, Inc., A-6, 19, 62, 84, 95, 120, 139, 140, 141
Williams, J. B., Inc., A-91
Winthrop Laboratories, A-61, 145
Wocher, Max, & Son Co., A-138
Wyeth Laboratories, A-60, 134
Wynn Pharmacal Corporation, A-96

before, during and after surgery

KOAGAMIN, unlike other hemostatic agents, acts quickly in minimal dosages. Working on the late phases of the clotting mechanism, KOAGAMIN does not require massive and prolonged pre- or postoperative dosages. Several million doses over twenty years, without reported toxic or untoward effects, attest to its safety and value.

KOAGAMIN, an aqueous solution of oxalic and malonic acids for parenteral use, is supplied in 10-cc. diaphragm-stoppered vials.

Chatham Pharmaceuticals, Inc.
Newark 2, New Jersey

Distributed in Canada by Austin Laboratories, Limited, Guelph, Ontario

KOAGAMIN®
(parenteral hemostat)

controls bleeding with minimal dosage and maximum safety

1951-1961...Bentyl controls G.I. spasm and pain

...yet atropine precautions ordinarily need not be observed.*

Selectivity is the key to a decade of success

*Even when spasm is concurrent with glaucoma or prostatic hypertrophy, because of the specificity of Bentyl for the G. I. tract.

BENTYL

(dicyclomine) Hydrochloride

Bentyl stands apart from antisecretories and other antispasmodics in combining effectiveness with outstanding toleration. Usual adult dosage is 20 mg. t.i.d. There is a Bentyl dosage form to suit every age group and therapeutic need. See page 661, *Physicians' Desk Reference*, 1961.

Brochure with full product information available on request.

TRADEMARK: BENTYL®

Merrell
SINCE 1828

THE WM. S. MERRELL COMPANY
Division of Richardson-Merrell Inc.
Cincinnati, Ohio/Weston, Ontario

In skeletal muscle spasm

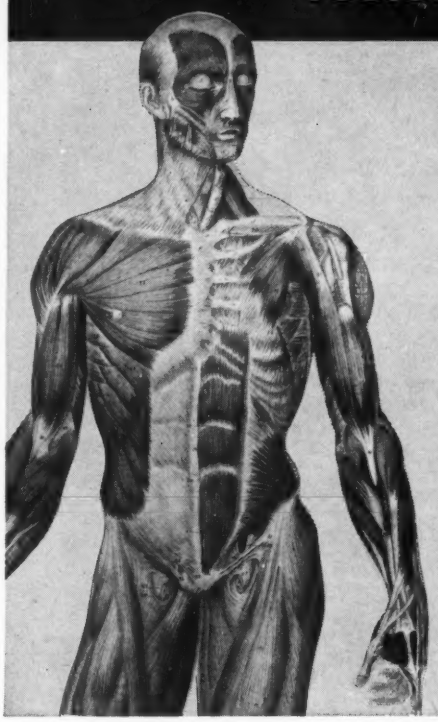
NORFLEX

orphenadrine citrate 100 mg. tablets

quickly resolves the spasm . . .

relieves the pain . . .

restores normal function



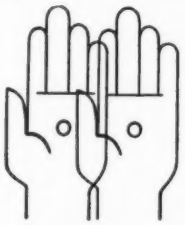
Prolonged relief

may last up to 12 hours after administration . . . permits uninterrupted sleep at night . . . does not interfere with daytime alertness . . . only the muscles in spasm respond . . . no lessening of general muscle tonus.

Contraindications:

Routine precautions against use of anticholinergic drugs should be observed. Norflex should be used with caution in glaucoma, tachycardia, or urinary retention.

Simple dosage for all adults regardless of age or sex: 2 tablets daily—one in the morning, one in the evening—easily remembered . . . offers better patient cooperation.



*U.S. Patent No. 2,567,351; other patents pending

NORFLEX is a product of

Riker Northridge, California

the gentlest doctors in town

stop pain with Nupercainal®

(dibucaine CIBA)

...For minor cuts and burns, sunburn, hemorrhoids, removing sutures, performing routine office surgery, making instrument examinations. And, to best suit every situation, there's a choice of Ointment, Cream, Lotion, Suppositories. Complete information sent on request.

CIBA
SUMMIT, N. J.

stop hemorrhoid pain with
NUPERCAINAL SUPPOSITORIES
exact dosage • fast acting